2014 Recruitment Puzzle

The Beginning

The Twitter Image

In early January 2014, people gathered together on the net to wait for the next signs of life from Cicada 3301. After several fake puzzles, eventually a genuine message from Cicada was received. On January 6th, the Twitter account used by Cicada in 2013's puzzle was re-examined; after being inactive for about a year, it suddnely tweeted a link to an image on imgur .

In line with earlier rounds, this image contained a steganographically hidden message recoverable using the program outguess . Executing

```
outguess -r zN4h51m.jpg zN4h51m_output
```

yields

```
-----BEGIN PGP SIGNED MESSAGE-----
Hash: SHA1


The work of a private man
who wished to transcend,
He trusted himself,
to produce from within.


1:2:3:1
3:3:13:5
45:5:2:3
20:3:20:5
8:3:8:6
48:5:14:2
21:13:4:1
25:1:7:4
15:9:3:4
1:1:16:3
4:3:3:1
8:3:26:4
47:3:3:5
3
13:2:5:4
1:4:16:4
.
o
n
i
o
n

Good luck.

3301
```

```
-----BEGIN PGP SIGNATURE-----
Version: GnuPG v1.4.11 (GNU/Linux)

iQIcBAEBAgAGBQJSyjguAAoJEBgfAeV6NQkPsgAP/A3tMC3lpyFNAc/sj+Izu15S
CzUjZJMe20Gu9UMNokQ2UJabktv9w0GMyK17TrMkUcU+ZpjdzGNqKoE2ETVxLmD/
uBZtR5PnF9EE3D08tJUPN1vSrYNkYk+9zcaUJZMPNgYNCt/CACutPwrOci9i9FDO
7BIpnhGqT3ZruqrSwO2Y73LJI1xxUt1XUqh1NQ+fJeAFMRkJBZZazkxRlgk3GGsF
fLrcEKrS+KBipV1EQaaKxjISc9hc2c1TfxE66evlkN+zLcoyDcYuyruNM5wiZzgM
2uR58c+xgWQgG5UuLFClfvjDxUvDkrKt4mzEeaYSUm1MsYueuYklz4ydlg5Mf6l2
p1WyAxO52XfXVUZASk6VmaEQ0WjODTXvLeFTxUSDoKDMkvxDVxX6wGkufS9JwakB
nTZizZ8Ypv8GcNCuNNGd6gZ1Vk2MYntggXdX8INd0Itcd3QnLqbBnATDOinDxlOs
5zTrtyTHNaxxDagPfAbU1jMXM0aHd7PFAzjjp7kgCTWqMyBch+8Vt80bjkdL9iw8
Q3hxuanq8mh6nUGc+tNe0UfqKHEbE+jWIezYqgawJB0M9R5OhxWE+E+jPXtZKkXQ
JHYndPDrrsV8q27b7p0KN0+oblTkjqsItIAuLu7FNd0B4xb1jjp1Sbh7WJdZ/rbi
mCO0vN/obU9qK1Vfapy0
=6Gxk
-----END PGP SIGNATURE-----
```

This message is signed with the PGP key used by Cicada in past years, verifying its authenticity. This message marks the start of 2014's recruitment puzzle.

The Book Cipher

The message looked like a book cipher. Cicada has used book ciphers in past years. Thanks to the hint in the beginning of the message the book was easy to find -- Self-Reliance and Other Essays, by Ralph Waldo Emerson.

To illustrate how to solve this cipher, take the first line of the message:

```
1:2:3:1
```

This line references the first paragaph of the text, the second sentence in that paragraph, the third word in that sentence and finally the first letter in that word. In this case the first character of the third word of the second sentence of the first paragraph in *Self-Reliance and Other Essays* is 'a'. Following this scheme for the rest of the cipher (the solitary 3 points to the third character in "Ralph Waldo Emerson", 'l') and appending ".onion" to the result yields

```
auqgnxjtvdbll3pv.onion
```

which is the address of a Tor hidden service. Visiting the service we found...

The First Onion

This onion has since gone offline.

The William Blake Collage

The hidden service featured this image, which is a collage of at least one painting by William Blake.

Following the usual procedure for investigating images, it was noticed that this image contains a message, again, extractable by outguess. This message in its entirety can be found here. The following is its content, omitting the PGP header and signature:

```
e = 65537
n = 75579125746085351644267182920580212556413102071876330957950694457000592\
    10248050757270234679993673844203148013173091173786572116639


- -----BEGIN COMPRESSED RSA ENCRYPTED MESSAGE-----
Version: 1.99
Scheme: Crypt::RSA::ES::OAEP

eJwBswBM/zEwADE2MgBDeXBoZXJ0ZXh0LE2jxJS1EzMc80kOK+hra1GKnXgQKQgVitIy8NgA7kxn
2u8jNQDvlu0uymNNiu6XVCCn66axGH0IZ9w4Af3K/yRgjObsfA1Q7QqpXNALJ9FFPgYl5rh07cBP
M9kbSH6DynU/5cYgQod2KymjWcIvKx3FkjV4UOGakDnBf1eQp1uwvn3KxDVwTyzPqbMnZvOA06Ec
AfKtyz1hEK/UBXkeMeVrnV5SQQ==
=yTUshDMKN65aPaKAR0OU8g==
- -----END COMPRESSED RSA ENCRYPTED MESSAGE-----
```

The message can be seperated into two parts. The first part, spanning the first 3 rows, declares two values, an *N* and an *e*. The next part, hugged by "*BEGIN COMPRESSED RSA ENCRYPTED MESSAGE*", contains information about an encryption scheme, also called a chiffre, as well as data encoded in base64 . Base64 is a scheme to encode unprintable bytes into printable characters.

The *Scheme* line tells us that the following message is encrypted using the cipher RSA. The next step was clear: decrypt the message. To do that, we needed something we didn't have: the private key. A brief explanation is in order.

A Brief Overview of RSA

RSA is a moderately complex cipher to understand; Numberphile provides a good introduction to the topic. Its main advantage is that, as a public key encryption scheme, it allows sharing of encryption keys without transmitting the key in plaintext or agreeing on a key in advance. Public key cryptography solves the problem of how two parties can communicate securely without a pre-existing secure channel of communication.

In RSA, *N* and *e* are variables commonly used in the mathematical aspects of the cipher. In fact, together they constitute the public key of an RSA keypair. The public and private keys are mathematically related. Without going too much into detail, they both are related to *N. N is* the product of two large primes, called *p* and *q*. If an attacker can factor *N,* which is publicly available, into its two prime factors *p* and *q*, then he can calculate the corresponding private key.

In reality, factoring large integers that have only two prime factors is a computationally hard problem . In RSA, an *N* with 2048 or 4096 bits is typically used as the large size provides enough complexity to make the factorization of *p* and *q* computationally infeasible in the short term.

Finding the Private Key (or, Brute Forcing RSA)

To our luck, the *N* used to encrypt the message was far smaller than 2048 or 4096 bits. The *N* we were given was 432 bits (130 decimal digits) long.

The solving community exhausted a lot of options in an attempt to find the private key. They searched for suspicious information in the data provided until that point, investigated images, brainstormed correlations, followed connections and so forth. As time went on and nothing was discovered, the solvers began to discuss the worst case scenario: finding *p* and *q* via brute computational force.

After a while it was agreed that a parallelized approach would render the best results, as a breakthrough in finding the hidden data would not impede on factorizing the number and vice versa. So a small group of people banded together to think about the most effective way to share their computing power in order to factor *N*. It was decided that a distributed approach would be the only feasible option, since even a 432 bit key requires an enormous computational effort not suited for a single processor. However, distributing the workload could achieve results in way less time, and the community was eager to help. We quickly agreed on cado-nfs , a program designed to obtain the prime factors of large integers using a distributed network of machines (convenient to say the least). After about 8 hours of debugging, fixing, patching and testing as well as additional 9 hours of distributively working on the prime, the results were in:

```
p = 97513779050322159297664671238670850085661086043266591739338007321
q = 77506098606928780021829964781695212837195959082370473820509360759
```

These individuals successfully brute forced a 432-bit RSA key. Make no mistake -- this is an incredible feat for a group of people spread across the world with consumer-grade hardware. At this point, the writer would like to take a moment to express their gratitude for the people participating in this effort. Without the people donating their time, efforts and resources, this would have taken a lot longer than originally anticipated. Also, a special thanks needs to go to the people who managed the servers, especially the one unnamed person who rented a server from Amazon to complete the last, locally computed phase of the calculation. With all words of thanks being said, let's continue.

Putting The Private Key To Use

Now that we have the information, we have to make something out of it. To make sure we do it right, it would be wise to simply do what cicada did to encrypt the message and reverse it. We also have a clue for this in the outguessed message. The line

```
Scheme: Crypt::RSA::ES::OAEP
```

contains a dead giveaway. The programming language Perl uses double colons to achieve modularization. Therefore, we can safely conclude that a Perl program was used to encrypt this message. A decryption program in Perl using the found p and q values is available here.

The Second Onion

This onion has since gone offline.

The Growing String

After the successful decryption of the RSA message, we had a single resource:

```
cu343l33nqaekrnw.onion
```

This is the address of a Tor Hidden Service. Upon visiting the service, the following document was displayed:

```
<!--Patience is a virtue-->
634292ba49fe336edada779a34054a335c2ec12c8bbaed4b92dcc05efe98f76abffdc2389bdb9de2cf20c009
```

The page appeared to be static. However, after some time, we noticed that the string was slowly growing. Every few minutes, two characters were appended to the end of the string. This process continued for approximately 23 hours. The time intervals between new bytes were found to be multiples of five. Various users recorded the minutes between updates, the time that they occurred, and the data appended at those times.

http://pastebin.com/5bTLHqCN

http://imgur.com/lTRRxTT

http://pastebin.com/qn8jmPJr (GMT +1)

http://i.imgur.com/prAeqPS.png

The above datasets are most likely not complete, and no guarantee of accuracy is made.

After 23 hours, the process stopped and no more characters/bytes were appended to the string. The final string was:

```
634292ba49fe336edada779a34054a335c2ec12c8bbaed4b92dcc05efe98f76abffdc2389bdb9de2cf20c009ac
dc1945ab095a52609a5c219afd5f3b3edf10fcb25950666dfe8d8c433cd10c0b4c72efdfe12c6270d5cfde291f
9cf0d73cb1211140136e4057380c963d70c76948d9cf6775960cf98fbafa435c44015c5959837a0f8d9f46e094
f27c5797b7f8ab49bf28fa674d2ad2f726e197839956921dab29724cd48e1a81fc9bab3565f7513e3e368cd032
7b47cf595afebb78d6b5bca92ba021cd6734f4362a0b341f359157173b53d49ea5dff5889d2c9de6b0d7e8c615
286ce596bfa83f50b6eeabd153aaf50cd75f39929ba11fb0f8e8d611442846
```

This string is 512 characters long. We assume it is hexadecimal.

However, about an hour after the string finished growing, at approximately 05:31:40 GMT the document changed. The old 512-character code was gone, along with the HTML comment. In its place was the following document:

https://infotomb.com/oyfhl.txt

We link to it because it is very large.

Note that the HTML comment was changed from

```
<!--Patience is a virtue-->
```

to

```
<!--761-->
```

This is significant. We noticed that, by applying the Gematrius Primus from the 2013 puzzle to the phrase 'Patience is a virtue' and summing the result, one obtains 761. The number is also a palindromic prime.

The new string was 3641299 (?) characters long. We noticed that it contained a significant amount of repeated text.

Analysis of this new string revealed that it contained three JPEG image files. This was discovered when we:

1. Converted the string into its binary representation
2. Flipped all the bits (i.e. 0 becomes 1, 1 becomes 0) [Note: this is equivalent to XOR 111111]

Looking at that XOR'd binary string, we noticed that the first two bytes were

```
0xFF 0xD8
```

Wikipedia tells us that these are the first two bytes of a JPEG image. We walked through the data left to right, and later on in the string, we discovered the same byte sequence again. This indicated the presence of more than one JPEG image. We analysed the rest of the string in a similar fashion, and discovered a total of three JPEG images. The third JPEG image was in reverse order, and so had to be un-reversed.

For further clarification, the order was this (.... = JPEG data, [ ] = one complete image):

[0xFF 0xD8........................][0xFF 0xD8........................][........................0xD8 0xFF]

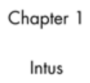
After transforming the bytes into their proper JPEG format (note that you must reverse the byte sequence of the third image before doing this):

```
dd if=onioninvert.bin of=onion1.jpg bs=1 skip=0 count=168876

dd if=onioninvert.bin of=onion2.jpg bs=1 skip=168876 count=1476614

dd if=onioninvert.bin of=onion3rev.jpg bs=1 skip=1645490 count=175159
```

we obtained the following three images:

Liber Primus

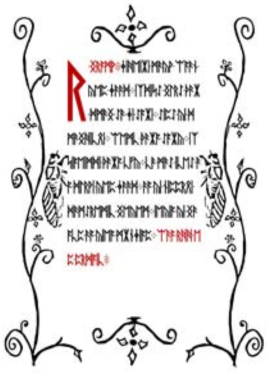
Liber Primus



Chapter 1

Intus

Intus



Runes

Image Analysis

Each of the images contain hidden messages and other information. These were found and analyzed simultaneously. As a result, this section does not proceed in chronological order.

Intus

```
outguess -r intus.jpg out.txt
```

yields https://infotomb.com/esd78.txt

Liber Primus

```
outguess -r liber_primus.jpg out.txt
```

yields https://infotomb.com/hb0ba.txt

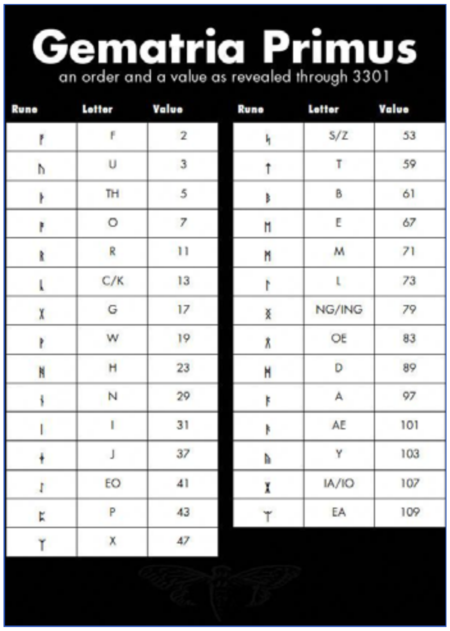
Runes

```
outguess -r runes.jpg out.txt
```

yields https://infotomb.com/vmtyf.txt

Here we break to explain something:

Below are two images. The first image is from 2013's puzzle and was obtained through use of XOR. It was used to solve portions of that year's puzzle. The second was created by puzzle solvers in 2014 and is derived from the first. Here we refer to 2013's image, which was released by Cicada 3301, as 'Gematria Primus 2013'. We refer to 2014's image as 'Gematria Primus 2014'. **It is paramount to understand that 2013's image was created by Cicada 3301, while 2014's was created by puzzle solvers and was created from rearranging 2013's image.**

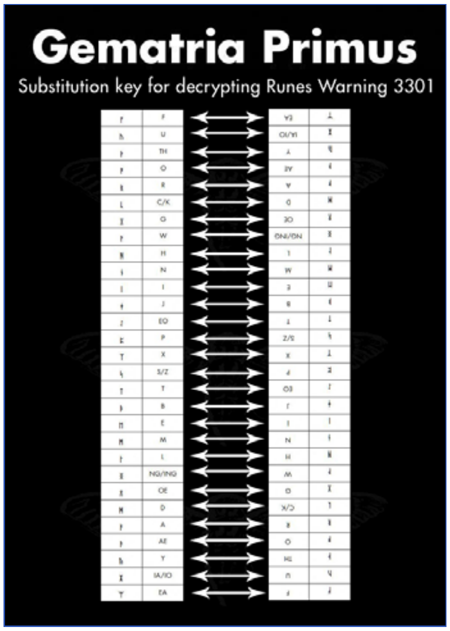


Gematria Primus

an order and a value as revealed through 3301

Rune	Letter	Value	Rune	Letter	Value
ᚠ	F	2	ᛋ	S/Z	53
ᚢ	U	3	ᛏ	T	59
ᚦ	TH	5	ᛒ	B	61
ᚩ	O	7	ᛖ	E	67
ᚱ	R	11	ᛗ	M	71
ᚳ	C/K	13	ᛚ	L	73
ᚷ	G	17	ᛝ	NG/ING	79
ᚹ	W	19	ᛟ	OE	83
ᚻ	H	23	ᛞ	D	89
ᚾ	N	29	ᚪ	A	97
ᛁ	I	31	ᚫ	AE	101
ᛄ	J	37	ᚣ	Y	103
ᛇ	EO	41	ᛡ	IA/IO	107
ᛈ	P	43	ᛠ	EA	109
ᛉ	X	47			

Gematria Primus 2013



Gematria Primus

Substitution key for decrypting Runes Warning 3301

ᚠ	F	⟷	EA	ᛠ
ᚢ	U	⟷	IA/IO	ᛡ
ᚦ	TH	⟷	Y	ᚣ
ᚩ	O	⟷	AE	ᚫ
ᚱ	R	⟷	A	ᚪ
ᚳ	C/K	⟷	D	ᛞ
ᚷ	G	⟷	OE	ᛟ
ᚹ	W	⟷	NG/ING	ᛝ
ᚻ	H	⟷	L	ᛚ
ᚾ	N	⟷	M	ᛗ
ᛁ	I	⟷	E	ᛖ
ᛄ	J	⟷	B	ᛒ
ᛇ	EO	⟷	T	ᛏ
ᛈ	P	⟷	S/Z	ᛋ
ᛉ	X	⟷	X	ᛉ
ᛋ	S/Z	⟷	P	ᛈ
ᛏ	T	⟷	EO	ᛇ
ᛒ	B	⟷	J	ᛄ
ᛖ	E	⟷	I	ᛁ
ᛗ	M	⟷	N	ᚾ
ᛚ	L	⟷	H	ᚻ
ᛝ	NG/ING	⟷	W	ᚹ
ᛟ	OE	⟷	G	ᚷ
ᛞ	D	⟷	C/K	ᚳ
ᚪ	A	⟷	R	ᚱ
ᚫ	AE	⟷	O	ᚩ
ᚣ	Y	⟷	TH	ᚦ
ᛡ	IA/IO	⟷	U	ᚢ
ᛠ	EA	⟷	F	ᚠ

Gematria Primus 2014

We now return to the puzzle. Using the Gematria Primus 2013, the runes in the 'Runes' image become:

```
R NGRAMW JIHEIIAI MAEYW EAAAEN

YEP JAEAED IXDISEO NGLREO THAEIA

DMAENG EOAE JI EOAIAI EOIPEO YI D

MAENGHICOEI EAEMC THAEIAA EOAIAY IX

SIAEIMDI THAEIAA CFY CAE MAEEO ICEEO AE

A DLRWI YEP JAEAED AEA YI NICCROEI

DAEMEOREMIC NGEYEM IEYIA YI NGAE

ACC AEA YIEA MIANJIAC EAAEA RHH E

C CRDAIC
```

This stumped us for a short while. Then, someone created Gematria Primus 2014 by rearranging Gematria Primus 2013. From Gematria Primus 13, take the left block of three columns and stack it on top of the right block of three columns. Then, find the letter you wish to decode. Find the position of that letter in the vertical list, beginning at the top. Take that number and find the character that many characters into the list, from the bottom up. Applying this process to each letter/rune yields (newlines added for readability):

```
A WARNING
BELIEVE NOTHING FROM THIS BOOK
EXCEPT WHAT YOU KNOW TO BE TRUE
TEST THE KNOWLEDGE
FIND YOUR TRUTH
EXPERIENCE YOUR DEATH
DO NOT EDIT OR CHANGE THIS BOOK
OR THE MESSAGE CONTAINED WITHIN
EITHER THE WORDS OR THEIR NUMBERS
FOR ALL IS SACRED
```

By substituting each character for its respective value in Gematria Primus 2013, we noticed that the sum of each line adds up to a prime (emirps marked by *):

```
A WARNING

BELIEVE NOTHING FROM THIS BOOK     =  757*
EXCEPT WHAT YOU KNOW TO BE TRUE    = 1009*
TEST THE KNOWLEDGE                 =  691
FIND YOUR TRUTH                    =  353*
EXPERIENCE YOUR DEATH              =  769*
DO NOT EDIT OR CHANGE THIS BOOK    =  911*
OR THE MESSAGE CONTAINED WITHIN    = 1051*
EITHER THE WORDS OR THE NUMBERS    =  859
FOR ALL IS SACRED                  =  677
```

The 5 Gram Message

Shortly after the warning in the previous section was found, it was discovered that by XORing the hexadecimal messages hidden within each of the three images the following message resulted:

```
-----BEGIN PGP SIGNED MESSAGE-----
Hash: SHA1



IDGTK UMLOO ARWOE RTHIS UTETL HUTIA TSLLO
UIMNI TELNJ 7TFYV OIUAU SNOCO 5JI4M EODZZ

Good luck.

3301


-----BEGIN PGP SIGNATURE-----
Version: GnuPG v1.4.11 (GNU/Linux)

iQIcBAEBAgAGBQJSy23PAAoJEBgfAeV6NQkPeJwP/0IoafJ1SbmhD+KNbL5I2EdH
jgPRnZNrKCyMpWFSIw1qs6ujuw6VnW/rfnOD+df4kpzoAwEFfZDcRnBVsvIzOJ31
Txj9jXD22ki/CNRY88NyIzW9fjKs+iOylsa7Tx+6PBb3ndoYNEwnQwLIq3K4S3kQ
tgMzE3LiVq2pQwqFNdN+zGqcq7POEs0GmnL1aNpqU+Wrba4gSfoWwQBWUDv3S/s8
vY0hEqhWNd76wphig6hH6OyIaX/t1eYfcsSYhzAE5oKKahGr1E7cX1GBpHCIr1WM
ZwNaGVArQAkyEzT++tmF01O9h218CiTUFoBM/Zxyra7vxI2UOYS/pLonuV+eXARY
YfPHaZZxfk3bUWXcxioRukFSY2+xNdPfuBIT8rcJqa1kPJOzeZVC/IcwHA2mmG4l
3ltiVcDnQrZgz6Im3/ugFg8bqW12qqZ6XizRP3EXm4EnyhpfKZnXKPLEOvPKCj6j
1kYCrLmGtTTPFx79fZfryGXQIEAmipRbjVS5sVbUCfgmqUagmdU6v9VI53n6+r0J
b2amxREA+2MflkEoVJUaLQJ1rKZLFFJ9J17zUaXKMllsDBWXJS4Mb54o2+8bkEcM
3cP+16XV9pf2wZBkJE0AwoXI4L8JEyjNZZcGSLy8BojlAupX3Fg9KKt71XXrm9FD
tuBhMYWo/TDz+4UzLB+I
=57tj
-----END PGP SIGNATURE-----
```

After some trial and error analysis, it was discovered that this ciphertext had been created using a simple column transposition cipher. By arranging the ciphertext into 14 columns like so:

0	1	2	3	4	5	6	7	8	9	10	11	12	13
I	D	G	T	K	U	M	L	O	O	A	R	W	O
E	R	T	H	I	S	U	T	E	T	L	H	U	T
I	A	T	S	L	L	O	U	I	M	N	I	T	E
L	N	J	7	T	F	Y	V	O	I	U	A	U	S
N	O	C	O	5	J	I	4	M	E	O	D	Z	Z

And reordering the columns like so:

2	8	9	1	12	13	11	4	5	7	3	0	6	10
G	O	O	D	W	O	R	K	U	L	T	I	M	A
T	E	T	R	U	T	H	I	S	T	H	E	U	L
T	I	M	A	T	E	I	L	L	U	S	I	O	N
J	O	I	N	U	S	A	T	F	V	7	L	Y	U
C	M	E	O	Z	Z	D	5	J	4	O	N	I	O

A message is obtained:

```
GOOD WORK
ULTIMATE TRUTH IS THE ULTIMATE ILLUSION
JOIN US AT FV7LYUCMEOZZD5J4ONIO
```

Assuming that the final N was omitted in order to fit the bounds of the column transposition cipher, and applying proper formatting, the following Tor hidden service address is obtained:

```
fv7lyucmeozzd5j4.onion
```

And off we went.

The Third Onion

This onion has since been taken offline. In this section the puzzle fractures into several directions. The author has chosen not to subdivide this section and instead opts for pure chronological formatting. Events in this section are detailed in the exact order they occurred.

The first visitor to this hidden service was greeted with a blank page. The page remained blank for a short time and then changed to the following document:

```
<!--1033-->
87de5b7fa2
```

As with the RSA onion, the string slowly grew over time, with two new characters (one byte) being added at widely varying intervals. Some timing data was collected for further analysis.

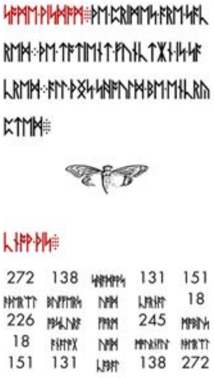
In the meantime, a solver ran the tool DirBuster against the hidden service and discovered an apparent misconfiguration of the backend Apache server. The server was leaking a system status page. Whether this was intentional is unknown. However, shortly after the page was discovered, it appears that Cicada was alerted that the status page had been discovered because the content of that page changed. Appended to the end of the server status was yet another very long string. This string was found to contain two image files in a similar ordering as the RSA onion, except that there was some data between them (OOB or Out Of Bounds data):

[0xFF 0xD8.............................] [Data in between JPGs] [.............................0xD8 0xFF]

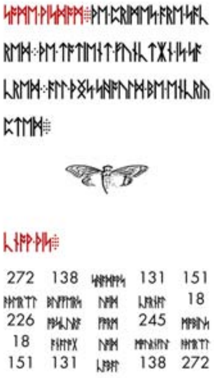
After building the first JPG from the hex:

```
xxd -p -r < server-status.hex > server-status.jpg
```

One obtains the image shown below on the left. Doing the same for the reversed copy of the second JPG yields the same image as the first, shown on the right -- except for that OOB data.


272 138 131 151
18
226 245
18
151 131 138 272

Onion 3 Image


272 138 131 151
18
226 245
18
151 131 138 272

Onion 3 Image 2

Comparing the first and second images

```
cmp -l server-status.jpg rev.server-status.jpg
```

one obtains the OOB data:

```
a02373230202020202833313020202020213433302020202021333130202020202135313a06363
330202020202939313020202020203331302020202020323330202020202028313a06323230202
02020253432302020202020213930202020202534323020202020632323a083130202020202203
23330202020202033313020202020293931302020202020636333a013531302020202020213331302
0202020213433302020202020283331302020202022373230a0a
```

Note that all of these bytes are within the printable range of ASCII characters, and many of them appear to be ASCII for digits (e.g. 0x30, 0x39).

Converting this string to binary:

```
xxd -b oob.hex oob.bin
```

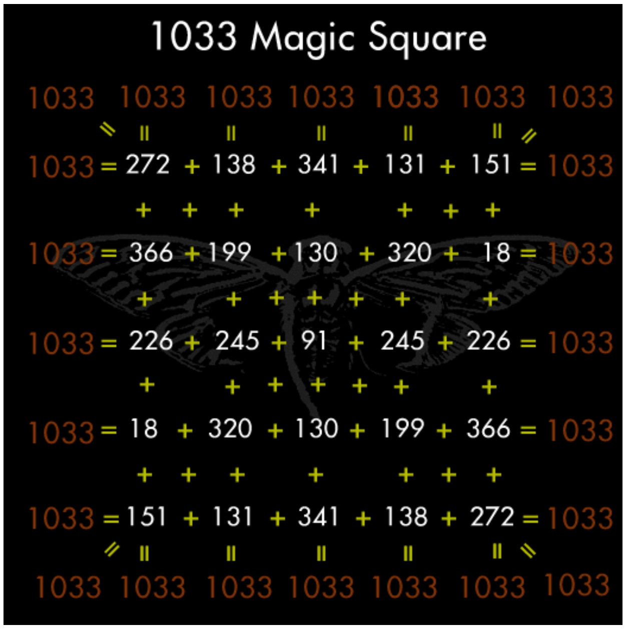
and reversing that::

```
xxd -r oob.bin oob-rev.bin
```

we obtain:

```
272    138    341    131    151

366    199    130    320    18

226    245    91     245    226

18     320    130    199    366

151    131    341    138    272
```

Among other things, this is a magic square whose magic number is -- you guessed it -- 1033.



1033 Magic Square

1033 1033 1033 1033 1033 1033 1033

1033 = 272 + 138 + 341 + 131 + 151 = 1033

1033 = 366 + 199 + 130 + 320 + 18 = 1033

1033 = 226 + 245 + 91 + 245 + 226 = 1033

1033 = 18 + 320 + 130 + 199 + 366 = 1033

1033 = 151 + 131 + 341 + 138 + 272 = 1033

1033 1033 1033 1033 1033 1033 1033

For those following along, here's a nice one-liner to get that matrix from the original image:

```
dd if=server-status.jpg bs=1 skip=$((0x00521e4)) count=357 status=noxfer | rev | xxd -p
```

With matrix and Gematria Primus 2014 in hand, we began to interpret the runes in the image. The runes in the upper half of the image read:

```
SOME WISDOM
THE PRIMES ARE SACRED
THE TOTIENT FUNCTION IS SACRED
ALL THINGS SHOULD BE ENCRYPTED
```

In the bottom half of the image, the red runes read:

```
KNOW THIS:
```

The table underneath, translated to value form using Gematria Primus 2013, yields:

272	138	341	131	151
366	199	130	320	18
226	245	91	245	226
18	320	130	199	366
151	131	341	138	272

which is the exact same matrix found earlier from the OOB data.

About a day went by with little activity other than speculation on the meaning of this matrix. Then the string from the main page stopped growing. According the the HTTP header, the final update occurred on January 11 at 01:09:01 GMT. The final document was:

```
<!--1033-->
87de5b7fa26ab85d2256c453e7f5bc3ac7f25ee743297817febd7741ededf07ca0c7e8b1788ea4131441a8f7
```

The final string was 512 characters (assuming hex, 256 bytes or equivalently 2048 bits). It was observed that this string matched the growing string from the previous onion.

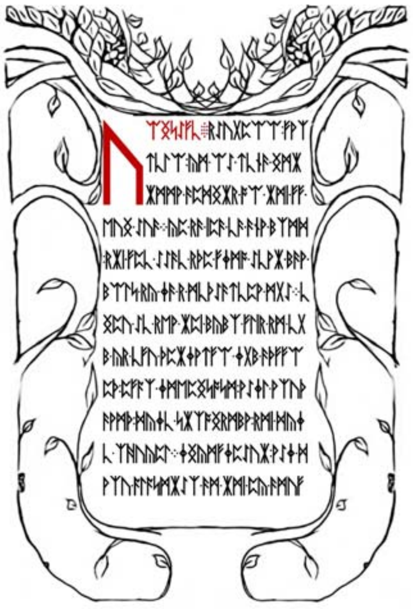
Author Note: Past this point recorded information becomes extremely difficult to understand due to an almost unbelievable amount of noobs discovering Uncovering Cicada, and we are unable to retrace these steps due to the pertinent onions being taken offline in quick succession. We have done our best to interpret and verify what we could, and while we present this information in good faith, we are simply unable to provide as firm a guarantee of accuracy as was present in the sections above.

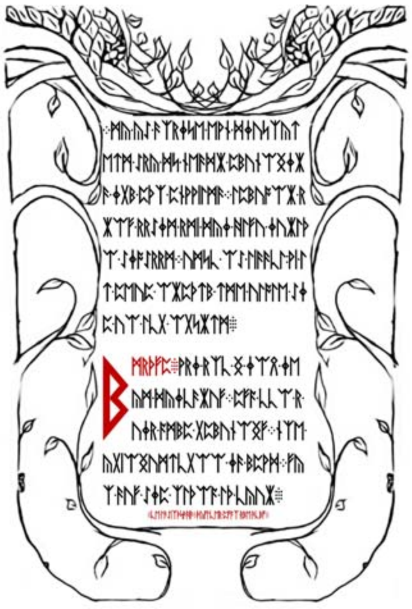
On January 11 at 10:07 UTC, the Apache server status page changed once again to display a new hexadecimal string:

https://infotomb.com/laqs9.txt

This string contained the following two images in the same style as before

[0xFF 0xD8...............] [...............0xD8 0xFF]



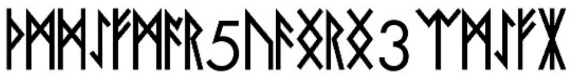


First Image

Outguessing the first image yields a signed message:

https://infotomb.com/t5uuz.txt

The hex string from that message encodes a JPG image:



The runes in this image were solved later (read on).

Translating the runes from the first image with Gematria Primus yields *(Author's Note: we haven't verified this yet)*:

```
uWGsSfc rSugpWW fwxtclW ym WS tcnF GmXXmmw FpdGXr oW Xmi ff euG SuF yp rF ipF cF Fnw bxm
```

After some time with trial and error, it was discovered that this ciphertext had been created with a Vignere cipher.

Reversing the cipher yields:

```
WELCOME:
WELCOME, PILGRIM TO THE GREAT JOURNEY
TOWARD THE END OF ALL THINGS.
IT IS NOT AN EASY TRIP, BUT FOR THOSE WHO
FIND THEIR WAY HERE IT IS A NECESSARY ONE.
ALONG THE WAY YOU WILL FIND AN END TO ALL
STRUGGLE AND SUFFERING, YOUR INNOCENCE, YOUR
ILLUSIONS, YOUR CERTAINTY, AND YOUR REALITY.
ULTIMATELY, YOU WILL DISCOVER AN END TO SELF.
```

Second Image

Outguessing the second image yields garbage output.

The runes on it translate to (*Author's Note: we haven't verified this yet)*:

```
my yS Fxrjse ewn djusxytetm Sry ds neFdX pbunWGjXF jgb pTx pnwwilmF lpbuoWX rXWf rrSjm r
bmrTfp wrj rxc G jWQ je ym dyjcFXuf pfa ccW r ujr ambp gpbunWGf nxe ygiWGumtcgWW jF bpwd
ce lFSixTsFhF Tyflcer pfax rbe Fcbf
```

After reversing the Vignere cipher:

```
IT IS THROUGH THIS PILGRIMAGE THAT WE SHAPE
OURSELVES AND OUR REALITIES.
JOURNEY DEEP WITHIN AND YOU WILL ARRIVE OUTSIDE.
LIKE THE INSTAR, IT IS ONLY THROUGH GOING
WITHIN THAT WE MAY EMERGE:

WISDOM:
YOU ARE A BEING UNTO YOURSELF.
YOU ARE A LAW UNTO YOURSELF.
EACH INTELLIGENCE IS HOLY.
FOR ALL THAT LIVES IS HOLY.
```

The red footer of that page reads

```
:AN INSTRUCTION: COMMAND YOUR OWN SELF :
```

Back to the server page:

Fourteen minutes after the status page update containing the two above images, on January 11 at 10:22 UTC the status page changed once again:

https://infotomb.com/hw0l5.txt

The first image from the previous update remained intact in the new string. However, the data of the second was replaced almost entirely with different hexademical. Attempting to render it as a JPG yields a corrupt and incomplete image.

Outguessed Image Solved

The runes in the small outguessed image obtained from the first new page were also encoded with a Vignere cipher. Using the key

```
welcome pilgrim to the
```

we obtained the Vignere offsets

```
22, 11, 9, 24, 26, 10, 11, 16, 19, 9, 23, 25, 19, 10, 13, 26, 27, 11
```

and using these offsets to decode the original runetext we obtained

```
A U O W Y F X L 5 L C S F J 3 N O N IA N
```

which formatted as a hidden service address yields

```
avowyfgl5lkzfj3n.onion
```

avowyfgl5lkzfj3nonion

Small image cleartext illustration

The Fourth Onion

This onion has since been taken offline.

Upon visiting the fourth onion we were greeted with the following document:

```
</head><body><!--3301-->
bf1d5574ca36efd524e6c34c26cbd628b19aa835aceb94ea7f2ca7f33d1b8f51476bc597d4bf9ad5111d8f39
<hr>
<address>Apache Server at 127.0.0.1 Port 5243</address>
</body>
</html>
```

This string is 512 characters (256 bytes). Shortly after the discovery of this string the onion went offline...

...until January 29 at 00:05 GMT, when it came back online. This time it contained no HTML. The sole content of the page was a signed message. The content of the message was a hex string (with newlines):

https://infotomb.com/vnq3e.txt

This string began with the bytes

```
0x1F 0x8B
```

indicating the string was a gzip file. Converting to binary

```
xxd -p -r onion4.hex onion4.gz
```

using file to confirm type

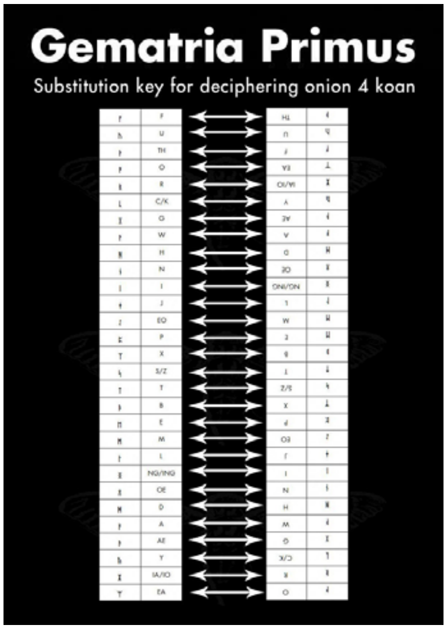
```
$ file onion4.gz

onion4.gz: gzip compressed data, was "data.out", from Unix, last modified: Fri Jan 24 15
```

and unzipping

```
gzip -d onion4.gz
```

we are left with binary data containing four images:

Using a similar substitution to the one used in Onion 2



Gematria Primus

Substitution key for deciphering onion 4 koan

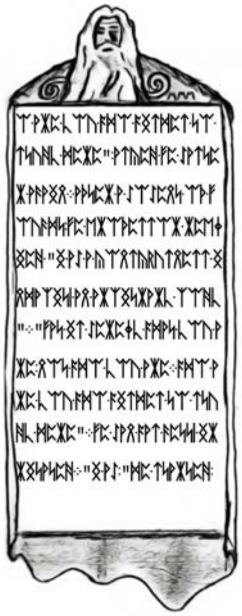
ᚠ	F
ᚢ	U
ᚦ	TH
ᚩ	O
ᚱ	R
ᚳ	C/K
ᚷ	G
ᚹ	W
ᚻ	H
ᚾ	N
ᛁ	I
ᛄ	J
ᛇ	EO
ᛈ	P
ᛉ	X
ᛋ	S/Z
ᛏ	T
ᛒ	B
ᛖ	E
ᛗ	M
ᛚ	L
ᛝ	NG/ING
ᛟ	OE
ᛞ	D
ᚪ	A
ᚫ	AE
ᚣ	Y
ᛡ	IA/IO
ᛠ	EA

and applying that to the runes in each image, we obtain a koan.

```
A KOAN

A MAN DECIDED TO GO AND STUDY WITH A MASTER.
HE WENT TO THE DOOR OF THE MASTER
"WHO ARE YOU WHO WISHES TO STUDY HERE?"
ASKED THE MASTER.
THE STUDENT TOLD THE MASTER HIS NAME.
```

```
"THAT IS NOT WHAT YOU ARE THAT IS ONLY WHAT YOU ARE CALLED.
WHO ARE YOU WHO WISHES TO STUDY HERE?" HE ASKED
AGAIN.
THE MAN THOUGHT FOR A MOMENT, AND REPLIED
"I AM A PROFESSOR."
"THAT IS WHAT YOU DO, NOT WHAT YOU ARE"
REPLIED THE MASTER. "WHO ARE
YOU WHO WISHES TO STUDY HERE?"
CONFUSED, THE MAN THOUGHT SOME MORE.
FINALLY, HE ANSWERED, "I AM A HUMAN BEING."
"THAT IS ONLY YOUR SPECIES, NOT WHO YOU ARE.
WHO ARE YOU WHO WISHES TO STUDY HERE?"
ASKED THE MASTER AGAIN.
AFTER A MOMENT OF THOUGHT, THE PROFESSOR REPLIED
"I AM A CONSCIOUSNESS INHABITING AN ARBITRARY BODY."
"THAT IS MERELY WHAT YOU ARE NOT WHO YOU ARE"
WHO ARE YOU WHO WISHES TO STUDY HERE?"
THE MAN WAS GETTING IRRITATED. "I AM," HE STARTED,
BUT HE COULD NOT THINK OF ANYTHING ELSE TO SAY,
SO HE TRAILED OFF. AFTER A LONG PAUSE THE MASTER REPLIED
"THEN YOU ARE WELCOME TO COME STUDY."

AN INSTRUCTION

DO FOUR UNREASONABLE THINGS EACH DAY.
```

The following image



when run through outguess

```
outguess -r onion4image3.jpg out
```

contains a message

```
For those who have fallen behind:

TL BE IE OV UT HT RE ID TS EO ST PO SO YR
SL BT II IY T4 DG UQ IM NU 44 2I 15 33 9M

Good luck.

3301
```

This ciphertext was found to be encoded with a columnar transposition cipher. Period = 7, key = 1736254.

Cleartext:

```
TOBELIEVETRUTHISTODESTROYPOSSIBILITYQ4UTGDI2N4M4UIM59133
```

Which of course translates to

```
TO BELIEVE TRUTH IS TO DESTROY POSSIBILITY Q4UTGDI2N4M4UIM59133
```

Formatting that last bit as an onion url yields

```
q4utgdi2n4m4uim59133.onion
```

bringing us to

The Fifth Onion

The fifth onion contained the following (signed) message

https://infotomb.com/ooxyo.txt

Shortly afterwards it went offline.

Converting the hex string to binary

```
xxd -p -r onion5.hex onion5.bin
```

and checking with file

```
file onion5.bin
```

tells us that it is an mp3 file. Renaming as such

```
mv onion5.bin onion5.mp3
```

and reading the ID3 tags

```
id3v2 -l onion5.mp3
```

shows

```
id3v2 tag info for his5u.mp3:
TIT2 (Title/songname/content description): Interconnectedness
TPE1 (Lead performer(s)/Soloist(s)): 3301
his5u.mp3: No ID3v1 tag
```

Thus the name of the song is 'Interconnectedness', and the artist is '3301'.

Translating each character of the word 'Interconnectedness' to its corresponding numerical value with the Gematria Primus 2013 and summing yields 772 (a prime). The song itself is 277.133 seconds long.

On January 31, Onion 5 came back online. This time it contained an image

This painting is *Portrait of Andrés del Peral* by Goya y Lucientes. The significance of this is indeterminate.

A subimposed image of a man can be seen in the upper right corner. Adjusting image filters reveals hidden information:

--Image temporarily ommitted due to wikia server maintenance--

The man in the upper right is supposed to be Grigori Rasputin. The significance of this is indeterminate. The two columns of numbers are (left to right)

```
181
7
15
16
966
456
351
7
```

which sums to 3301, and

```
1071
626
204
434
```

which sums to 1033. The significance of these numbers is indeterminate.

Applying outguess to the original portrait

```
outguess -r onion5portrait.jpg onion5portrait.outguess
```

and checking the output with file

```
file onion5portrait.outguess
```

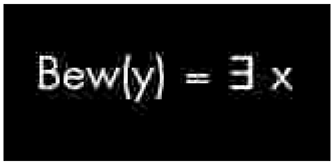
indicates that the retrieved data is a bzip compressed file. Decompressing

```
bzip2 -d onion5portrait.outguess
```

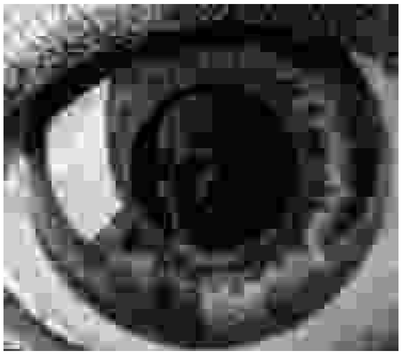
gives us a text file with a signed message.

https://infotomb.com/772hf.txt

Breaking up the three hex blocks in the message and using xxd to convert to binary yields two JPG images and an MP3 file.



Bew(y) = ∃ x



The equation in the first image is part of the **Godel** incompleteness theorem. The mp3 file is a segment of **Bach'**s Trio Sonata in G Major (BWV 1039). The picture of the eye is a painting by M.C. **Escher** called 'Eye', painted in 1946.

The last bit of the signed message

```
3PI:6:1:3
LML:1:1:1
3
ETOATS:19:9:1
...AF:5:3:1
AMO:13:10:1
CC:8:6:1
CBIA:3:7:2
CFAF:5:23:6
SPR:1:8:1
7
C[1]:4:5:3
AWDV:6:2:1
C[2]:2:17:5
SC:3:17:1
AOGS:2:8:1
ONION
```

is a book code. The key is ***Gödel, Escher, Bach**: An Eternal Golden Braid* by Douglas Hofstadter. The format of the code is

```
<chapter>:<line>:<word>:<letter>
```

Applying the code to the book:

```
3PI:6:1:3          Three-Part Invention 29                           (u)
LML:1:1:1          Little Harmonic Labyrinth 103                     (t)
3                                                                    (3)
ETOATS:19:9:1      Edifying Thoughts of a Tobacco Smoker 480         (q)
...AF:5:3:1        ... Ant Fugue 311                                 (t)
AMO:13:10:1        Introduction: A Musico-Logical Offering 3         (z)
CC:8:6:1           Crab Canon 199                                    (b)
CBIA:3:7:2         Canon by Intervallic Augmentation 153             (r)
CFAF:5:23:6        Chromatic Fantasy, And Feud 177                   (v)
SPR:1:8:1          Six-Part Ricercar 720                             (s)
7                                                                    (7)
C[1]:4:5:3         Contracrostipunctus 75                            (d)
AWDV:6:2:1         Aria with Diverse Variations 391                  (t)
C[2]:2:17:5        Contrafactus 633                                  (v)
SC:3:17:1          Sloth Canon 681                                   (z)
AOGS:2:8:1         Air on G's String 431                             (p)
ONION
```

yields

```
ut3qtzbrvs7dtvzpONION
```

and formatting correctly yields

```
ut3qtzbrvs7dtvzp.onion
```

bringing us to

The Sixth Onion

```
ut3qtzbrvs7dtvzp.onion
```

The first thing found at this onion address was a large block of hex after the HTML comment

The hex was

https://infotomb.com/hrz8z.txt

It contained four JPEG images in sequential, non-reversed order. They are

The runes were not enciphered, and they read:

Page 1:

```
THE LOSS OF DIVINITY: THE CIRCU
MFERENCE PRACTICES THREE
E BEHAVIORS WHICH CAUSE TH
E LOSS OF DIVINITY.

CONSUMPTION: WE CONSUME TOO
MUCH BECAUSE WE BELEIVE THE
FOLLWING TWO ERRORS WITHIN THE DEC
EPTION.

    1 WE DO NOT HAVE ENOUGH
    OR THERE IS NOT ENOUGH
```

Page 2

```
    2 WE HAVE WHAT WE HAVE N
    OW BY LUCK, AND WE WILL NOT
    BE STRONG ENOUGH LATER T
    O OBTAIN WHAT WE NEED.

MOST THINGS ARE NOT WORTH CONSUM
ING:

PRESERVATION: WE PRESERVE
THINGS BECAUSE WE BELIEVE WE AR
E WEAK. IF WE LOSE THEM WE WILL NO
```

```
T BE STRONG ENOUGH TO GAIN THEM
AGAIN. THIS IS THE DECEPTION.
```

Page 3

```
MOST THINGS ARE NOT WORTH PRESERV
ING:

ADHERENCE: WE FOLLOW DOGMA
SO THAT WE CAN BELONG AND BE RIGH
T. OR WE FOLLOW REASON SO WE CAN
BELONG AND BE RIGHT.

THERE IS NOTHING TO BE RIGHT ABOUT.
TO BELONG IS DEATH.

IT IS THE BEHAVIORS OF CONSUMPT
ION, PRESERVATION, AND ADHEREN
```

Page 4

```
CE THAT HAVE US LOSE OUR PRIMAL
ITY AND THUS OUR DIVINITY:


SOME WISDOM: AMASS GREAT W
EALTH. NEVER BECOME ATTA
CHED TO WHAT YOU OWN. BE
PREPARED TO DESTROY ALL THAT
YOU OWN:

AN INSTRUCTION: PROGRAM YOU
R MIND. PROGRAM REALITY
```

Each of these images contained a PGP signed outguess message. They're all essentially the same, following the form of

```
-----BEGIN PGP SIGNED MESSAGE-----
Hash: SHA1


Create one Tor hidden service that can accept CGI file uploads.

When this hidden service returns and can accept input, post the
three magic squares and the URL to your Tor hidden service here.

Work alone.


3333333333333333
310    12    103
3              3
312    14    123
3              3
310    12    103
3333333333333333


Good luck.

3301
```

```
-----BEGIN PGP SIGNATURE-----
Version: GnuPG v1.4.11 (GNU/Linux)

iQIcBAEBAgAGBQJS24E0AAoJEBgfAeV6NQkPNPEP/jxtRsM2AOE3KRChpl1IHxGe
oMyd/YjXW7/o8X6Cv+AYhzQhRhqOQPL0N+fVC2WNO64CGnOmTLbhZPoXpV1giSmA
UguBIWZ59MmitGVmiz68M/i5H68h7s7eXoC5u7/iZjVMQBr86J1iJyeabVjJMSp+
OI8ouTuVAZ5lccvUy9UpV82GtGZoM7P1xxWJGpM3LIz6mv7VdfogrCNAW0jhZ2/x
8eiiHFuB5oktc9uTbIqhJQsESuc1u/uMkeb1OGXovKmD+zLtq+DPbWo8P0lnT70V
pyLOLM5CWsAjblU+5ohK57yFP6AV6x4l97BQyRmMOojh35QGKPVULZG4sRPKsuG5
nw93gRi6/eQ/aQvQuEvkf4lbj/V5G4kOj/YcQhyjAWdo1UPl9zkUXs2lKH7sUUms
P1WV6eyL6rAqpUXfwpDSfaPTPquIwuFsEl5z/d14IXnR3s+LQjlFDO3DE2d9QlEr
h5daiLFEvH+wyoJ5aPOsSkT+QJqCrVQNnbbQYzYKeMKAshu1LWuk1ZQ0XAEA6C2b
zbiPcXg0OMO+VWkhscZwxIHr1N5TVDj3NOszCfUe7lrYZhE0F/TL50NkGxw9+2qH
byDA8E4Yhe2c7pUVgs3OQLX46N4SOlbsH2MNXO9Y5jjI2Oj+OwLQ07F8jouNvXN4
kY3+nCV1PPLtiOu1CCP1
=/MnD
-----END PGP SIGNATURE-----
```

Note the number square (not magic) in the middle of the message:

```
10    12    10

12    14    12

10    12    10
```

The only difference between the messages in each image was the number used to make the border of the number square.

Page 1's outguess (above) used '3', page 2 used '3', page 3 used '0', and page 4 used '1', spelling out 3301.

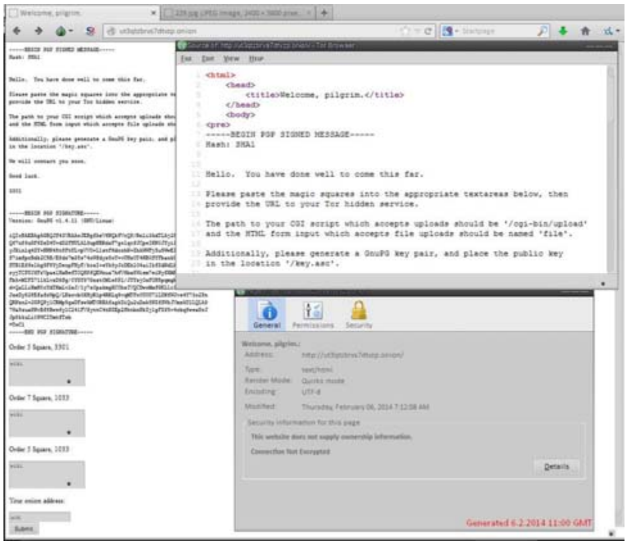
The onion went offline shortly afterwards. Six days later it came back online, sporting the following message:

```
-----BEGIN PGP SIGNED MESSAGE-----
Hash: SHA1

Hello.  You have done well to come this far.

Please paste the magic squares into the appropriate textareas below, then
provide the URL to your Tor hidden service.

The path to your CGI script which accepts uploads should be '/cgi-bin/upload'
and the HTML form input which accepts file uploads should be named 'file'.

Additionally, please generate a GnuPG key pair, and place the public key
in the location '/key.asc'.

We will contact you soon.

Good luck.

3301


-----BEGIN PGP SIGNATURE-----
Version: GnuPG v1.4.11 (GNU/Linux)

iQIcBAEBAgAGBQJS43VRAAoJEBgfAeV6NQkPVcQP/Rnli3AdTLAj28W1SMHTD6v0
Q67n89uGF6ZeD4U+dD2FHULAL9upNBRdzF7golqcfJCpeIKN0JYyilpGgSyTQmx+
yJXinlq4ZY+NNN45t8FtULvpVVO+L1ztF6dcohK+ZhAWWFj5u5WwEINx0mo+TE35
S7imfprBdk2C5B/E8ds7m35s74oWfdys8oY+vUHzOT4KB0SYFbankH6aLIe7fiTa
STB1Effelhg9F8YjDsopFHyF/kozI+eYk9yJcDEhlO4aiIkfZdNdLhXz80SIKw9v
```

```
ryjTCPUJfFrVpaelHxBefTOQHPfQEWnua7h6V6bx8Wiem7eiNyfXMAk1uoiu9zWW
FbA+MIFZ711kLvzD9Sg/0YGY97Gzzt0M1e8Pl/JYYzjOzFOH5pqmgMoOTBO0bvV+
d+QaLLiKmH0cYdTKmLv2xJ/1y7z0pakmgXCOhzIVQCDwoMxfGELLi9MNroaZFK3e
JzeDy828EfafrWpQ/LNzovb0XHyR1p4RRLq9vqMTFo0U0U7lLDKfWJvs4Y73o2Pn
QRNzn2+2GPQPj1CRMp5gxDFzwAMT0RBAfagkDiQu2uDxk8NZfSWkJVmsAUlLQLA9
7Wa5zuxPNvBf8Bws6y1C241FVfyttC4tNZEp2ShtbnHkZj1gFZf5v4rbq8wsxPrJ
Jp8kkuLi0PWCITmtfTsb
=TwC1
-----END PGP SIGNATURE-----
```

and then three text boxes where the referenced 'magic squares' had to be pasted. At the bottom was a text box for the onion url of the hidden service mentioned in the previous message.

Screenshot of the page:



```
<html>
    <head>
        <title>Welcome, pilgrim.</title>
    </head>
    <body>
<pre>
-----BEGIN PGP SIGNED MESSAGE-----
Hash: SHA1


Hello.  You have done well to come this far.

Please paste the magic squares into the appropriate textareas below, then
provide the URL to your Tor hidden service.

The path to your CGI script which accepts uploads should be '/cgi-bin/upload'
and the HTML form input which accepts file uploads should be named 'file'.

Additionally, please generate a GnuPG key pair, and place the public key
in the location '/key.asc'.
```

Order 5 Square, 3301

Order 7 Square, 1033

Order 5 Square, 1033

Your onion address:

Welcome, pilgrim.:
Address: http://ut3qtzbrvs7dtvzp.onion/
Type: text/html
Render Mode: Quirks mode
Encoding: UTF-8
Modified: Thursday, February 06, 2014 7:12:08 AM

This website does not supply ownership information.

Connection Not Encrypted

Generated 6.2.2014 11:00 GMT

The page accepted any magic square that matched the criteria (e.g. first box square had to be order 5 and sum to 3301). Some time after this, it was discovered that the mp3 'interconnectedness' found on Onion 5 contained steganographically hidden data. The tool used to hide this data was 'OpenPuff'. The data hidden was a text file named 'magicsquares.txt' containing the following:

```
434     1311    312     278     966

204     812     934     280     1071

626     620     809     620     626

1071    280     934     812     204

966     278     312     1311    434



7       375     236     190     27      17      181

351     223     14      47      293     98      7

456     232     121     114     72      23      15

16      65      270     331     270     65      16
```

15	23	72	114	121	232	456
7	98	293	47	14	223	351
181	17	27	190	236	375	7
272	138	341	131	151		
366	199	130	320	18		
226	245	91	245	226		
18	320	130	199	366		
151	131	341	138	272		

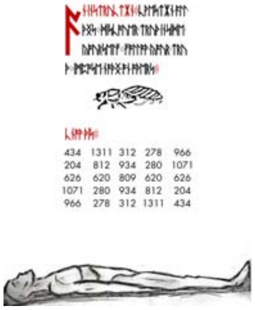
Two order 5 and one order 7 magic square, summing to 3301, 1033, and 1033.

Upon submitting these squares and a link to your hidden service, the following page displayed:

```
< html >< head >< /head >< body >
< p > Thank you for you submission. < /p >
< img src="[view-source:http://ut3qtzbrvs7dtvzp.onion/107.jpg  /107.jpg]" / >< br / >
< img src="[view-source:http://ut3qtzbrvs7dtvzp.onion/167.jpg  /167.jpg]" / >< br / >
< img src="[view-source:http://ut3qtzbrvs7dtvzp.onion/229.jpg  /229.jpg]" / >< br / >
```

Note that the <html> tag is not properly closed.

The images on the page:



434	1311	312	278	966
204	812	934	280	1071
626	620	809	620	626
1071	280	934	812	204
966	278	312	1311	434

The final image is enormous, perhaps indicating the end of the book.

Decoding the runes on the page using a Vignere cipher and key CIRCUMFERENCE yields

```
A KOAN: DURING A LESSION: THE MAS
TER EXPLAINED THE I:"THE
I IS THE VOICE OF THE CIRCU
MFERENCE,"HE SAID.WHEN AS
KED BY A STUDENT TO EXPLAIN
 WHAT THAT MEANT, THE MASTER SA
ID"IT IS A VOICE INSIDE YOUR H
EAD"."I DON'T HAVE A VOICE I
N MY HEAD," THOUGHT THE STUDENT,
AND HE RAISED HIS HAND TO TE
LL THE MASTER.THE MASTER STOP

--page change--

PED THE STUDENT,AND SAID"THE
VOICE THAT JUST SAID YOU HAV
E NO VOICE IN YOUR HEAD, IS THE
I."AND THE STUDENTS WERE ENL
LIGHTENED:
```

The text on the final page is not encoded. Transcription via Gematrius Primus yields:

```
AN INSTRUCTION:QUESTION ALL
THINGS: DISCOVER TRUTH INSIDE
YOURSELF: FOLLOW YOUR TRU
TH: IMPOSE NOTHING ON OTHERS.

KNOW THIS:
434 1311 312 278 966
204 812 934 280 1071
626 620 809 620 626
1071 280 934 812 204
966 278 312 1311 434
```

The End

As usual, after the final submission we heard nothing. The IRC channels slowly died. The onions all went offline.

Author's Note: when I say we heard nothing, 'we' references the collective of solvers. Cicada does not recruit groups, only individuals.

Draw your own conclusions.