

The GCHQ recruitment puzzle begins on the page that announces the competition:

<u>https://canyoufindit.co.uk</u>. The first step is to understand what it is that you are expected to do. If you examine the source code of this page

ê	https://canyoufindit.co.uk/ - Original Source – 🗖 🗙
<u>F</u> ile	<u>E</u> dit F <u>o</u> rmat
1 2 3	<pre>(loCTYPE html) > </pre> if lt IE 7? </th
4	<pre>cl-[if IE 8]> <html class="no-js ie8 lf-ie9"> <lendif]-></lendif]-></html></pre>
5	<pre>cl[if IE 9]> <html class="no-js ie9"> <{[endif]></html></pre>
7	<pre>chead></pre>
8	<pre><meta charset="utf-8"/></pre>
10	<pre><inter <="" =="" content="11=dage;cin" duce="1" duct="x-on-comparing" pre=""></inter></pre>
11	<pre><meta content="Our new challenge is to find and solve 5 codes we have hidden around the web. For anyone able
to rise to the challenge and find all the codes, you'll join an elite community of people with some of the specific skills we look for
at GCMD." name="description"/></pre>
12 13	<pre><meta content="width=1100" name="viewport"/></pre>
14	<pre><meta content="https://canyoufindit.co.uk/img/GCHQ.png" property="ge:image"/> </pre>
16	<pre>cmeta property="0g:description" content="Gun met challenge is to find and solve 5 codes we have hidden around the web. For anyone able to rise to the challenge and find all the codes, you'll join an elite community of people with some of the specific skills</pre>
17	<pre>we look for at UsUQ. /> </pre> <pre>cmeta property="ge:url" content="https://canyoufindit.co.uk/"/> </pre>
18	<pre><meta content="GCHQ :: Can you find it?" property="og:site_name"/></pre>
20	<pre><link href="css/normalize.css" rel="stylesheet"/></pre>
21	<pre><link href="css/main.css" rel="stylesheet"/></pre>
22	<pre><script src="js/vendor/modernizr-2.6.2.min.js"></script> </pre>
24	 kbody>
25	<pre><div id="header"></div></pre>
27	
28	GCHQ - explore another world
30	<pre><div class="module m-progress"></div></pre>
31	<pre>completed - 6%</pre>
33	<pre><dv class="bar-background"></dv></pre>
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36	<pre></pre> <pre></pre> <pre></pre> <pre></pre> <pre></pre>
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40	<div class="addthis_toolbox" id="social-links"></div>
41	<u>></u>
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44	<pre></pre> <pre><</pre>
45	<pre>cli>ca rel = email nrer= mailcr:subject=.amx20you%20r1n0x20tnex2059erm2058erretsxsraoody=Lastxx20yearmx20x20tnQx 20created%20a%20groundbreaking%20challeng%20%20which%20asked%20%27Can%20you%20Crack%201t%27.%20Now%20in%202020tney%27re%20asking% 20can%20You%20Find%20It%3F%20%c0Their%20new%20challenge%20is%20td%20find%20and%20solve%205%20codes%20%idder%20around%20the%20web.%20For% 20anyone%20able%20td%20ris&20td%20the%20challenge%20ad%20find%20a1l%20the%20rc%20%20the%2711%20did%20alie%20ecmmunit%20bf%</pre>
	20people%20with%20sonm%20of%20the%20specific%20skills%20prized%20by%205CHQ,%20%205CHQ%20alsd%20have%20sonm%20great%20prizes.%20You% 20could%20win%201%20of%2010%20Rspberry%20Pi%20or%201%20of%20%20Soogle%20Nexus%20%20tablets.%20Can%20you%20find%20it%3F%20https% 3A//canyoufindit.co.uk/" class="addthis_button_email email-link addthis_button">
46	
47 48	11 >
49	
50 51	<pre><div id="main"></div></pre>
52	<pre></pre>
53	<h>><h><h>><h><h><h><h><h><h><h><</h></h></h></h></h></h></h></h></h></h>
55	<pre>ANVLI QOXY QOSQO ELGCV IIQUD LCLQE EOENN WWOAD</pre>
56	LIDNU QIGAM ISMDO QILAO QSDCH PQQIQ DQQIQ OOTUD
57	LICAI QATUN QRALT ENEIN RKG

you will see that it includes the message:

"Our new challenge is to find and solve 5 codes we have hidden around the web. For anyone able to rise to the challenge and find all the codes, you'll join an elite community of people with some of the specific skills we look for at GCHQ."

So, we appear to be looking for a series of web pages each of which will contain a clue to the next page and an answer to the place in the boxes on the start page.

The first puzzle is on the page you see in your browser. It contains a series of characters:

AWVLI QIQVT QOSQO ELGCV IIQWD LCUQE EOENN WWOAO

LTDNU QTGAW TSMDO QTLAO QSDCH PQQIQ DQQTQ OOTUD

BNIQH BHHTD UTEET FDUEA UMORE SQEQE MLTME TIREC

LICAI QATUN QRALT ENEIN RKG

To a code breaker there are a few features that immediately strike you about this text:

- It is displayed in groups of five characters. This is a historic trend used in part to stop any
 particular frequency or word matching to be made available by the format in which the
 message was transmitted. It is probably most famous from the many encrypted Enigma
 messages that on sees written about. In essence, you can ignore it as it is unlikely to provide
 you with anything useful for decrypting the message.
- 2. There are a large number of "Q's". This is unusual as Q is an infrequently used letter in the English language, and assuming the message is in English, the Q's probably server some function. Such infrequently used characters are often used as spaces. So, it is likely that you can ignore the actual spaces used to create the five letter groups and assume that the Q's are the actual spaces.
- 3. For anyone who has dealt with ciphers the number of characters is of interest. Here we have 143 characters, which just happens to be the product of two prime numbers: 11 and 13. This is a big clue. What you are supposed to do is rearrange text as shown into a grid that is 11 by 13 characters:

А	W	V	L	1	Q	I	Q	V	Т	Q	0	S
Q	0	E	L	G	С	V	I	I	Q	W	D	L
С	U	Q	E	E	0	E	Ν	Ν	W	W	0	А
0	L	Т	D	Ν	U	Q	Т	G	А	W	Т	S
М	D	0	Q	Т	L	А	0	Q	S	D	С	Н
Р	Q	Q	Ι	Q	D	Q	Q	Т	Q	0	0	Т
U	D	В	N	Ι	Q	Н	В	Н	Н	Т	D	U
Т	E	E	Т	F	D	U	E	А	U	М	0	R
E	S	Q	E	Q	E	М	L	Т	М	E	Т	I
R	E	С	L	1	С	Α	Ι	Q	Α	Т	U	Ν
Q	R	Α	L	Т	Е	Ν	Е	I	Ν	R	К	G

Now if you read down the columns, using Q's as spaces you see the following message emerge:

A COMPUTER WOUL DESERVE TO BE CALLED INTELLIGENT IF IT COULD DECEIVE A HUMAN INTO BELIEVING THAT IT WAS HUMAN WWWDOTMETRODOTCODOTUKSLASHTURING

This form of encryption is a transposition cipher. It has many forms but the one used here is one of the simplest. It has a long history and before electronic encryption devices it, and its variants were the basis for many secret communications.

If you take the web address at the end of the message and write it in more familiar form:

www.metro.co.uk/turing

you have the next stop on your journey, plus you have the answer to the first clue which is "Turing".

File Edit View Favorites Tools Help	C 🥃 6CHQ :: Can you find it? 🗙	- □ × ↑★♡
GCHQ explore another world		f ¥ <
Challenge Two		
Index		
Name	Last modified	Size Description
<u>comp1.key</u>	11/4/13 11:41:21 AM	1 kB
Take part in the latest challenge from GC <u>CanYouFindit co.uk</u> and you will have a co	HQ. Find and solve five challenges hidden all over the web – hance to win a Raspberry Pi or a Nexus 7.	– If you can. Then enter the solutions at
Jobs on offer	Prizes	
Cyber & Technical Operations Various Locations	Raspberry Pi Win one of 100 amazing mini-computers	Google Nexus 7 Win one of 5 of these cutting edge tablets
Maths & Cryptography Chettenham	> 🚳 🏑	
 Advanced Technology Research Chettenham 	> More +	More ·

When you arrive at the new web page you see that there is a file available to download. It helpfully has the extension "key" so even before opening it one can assuming it is some form of encryption key. Download and open the file and you see the following:

-----BEGIN RSA PRIVATE KEY-----

MIIC2gIBAAKBgDfABK8+joDLdbFTDJ+y3PTTzkqCi1L2qEjgxdg1iyZshJTeKUck

SYVyKBeOBtB3FwwqXVa6iNEHJeLFewFE6ulEOIcatVp11Zg0ibMfnqTivbd6t8/z

3KzqrFksg9xQiicMactmTqFkm8ro5ODc2NTQzMjEwLy4tLCslBOCOVHxAgMBAAEC

gYATW12FB2BtQbecmSxh6rWjYENZRZhgdvoZS8oF9xlYfwdNtRF5/RR1/BwFia++

BAuBktgTu/KzORsjcNPzrd0uTCbTG6hW8YPK2ROVOOeAMHek8Nl3+SW5wdePKuWw

MdjDDjqxXDns+ZC1d2Cpz5V+x+2znOYL0bsEKei0sWl7LQKBgDfABK8+joDLdbFT

DJ+y3PTTzkqCi1L2qEjgxdg1iyZshJTeKUckSYVyKBeOBtB3FwwqXVa6iNEHJeLF

ewFE6uhVSior5HGPArFhsOQ0v9ob1NCV7P8M99qN4XpImX/xs05HgQCVh9aMWtio

pKCcmJSQjIiEgHx4dHBsU9JB+TvkAkB3dy53aHRzaXNpbGd1b2VjdHNyZWhzcmku

ZW9jdS4va2xidGVoY2VsIHkgICAgICAgICAgICAgICAgICAgIAuPAkATpSSd/C5S

IEAbUPk+ZYAdt7OYVzay7ViAiaukhkt+/sJG+m8GmHnAKyLf9ohx3/alcd/2iHHf 9ohx3/ayirJPAkAlefJYEpdAoRjJQCHPGUpOVjLiyQMyPcnsutG+ctAGGU8lZTDU yUim9V7iwqTE4sKkxOLCpMTiwqTE4sKkxOFNAoGAFInzTsAOkauW3crd1XfxMhxi tUkapdQqlwvFhZuouNlybfEOfW6WkjtghBDyqf50cEFWXMJ7Vk8mr6cwTosPvYKU VXKUCblretLTeU95TlbkprizPky++5b7pQuSi3mpLMi+6VgvcjTthfXPYNg2JjJp gmteC4felYL/2FTAmT8=

-----END RSA PRIVATE KEY-----

If you take this on face value it is a RSA Private Key from an RSA Public/Private key pair. What is a lot less clear is what it is supposed to be used to decrypt. The page contains no other text or files that would seem to be usable with this key. You have to assume the key itself has something more to tell you. So, the starting point of most forensics is to open the file in a hex editor and see what it might reveal:

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📓 comp1.key					
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00000040	33 50 54 54 71	A 6B 71 43 69) 31 4C 32 71 45 6A	67 78 64 67 31 69 79 51 73 68 41 54 65 4B 55 63 6B	3PTTzkqCi1L2qEjgxdg1iyZshJTeKUck
00000060	OA 53 59 56 79	9 4B 42 65 4F	42 74 42 33 46 77	77 71 58 56 61 36 69 4E 45 48 4A 65 4C 46 65 77 46	.SYVyKBeOBtB3FwwqXVa6iNEHJeLFewF
08000000	45 36 75 6C 45	5 4F 49 63 61	. 74 56 70 31 31 5A	67 30 69 62 4D 66 6E 71 54 69 76 62 64 36 74 38 2F	E6ulEOIcatVp11Zg0ibMfnqTivbd6t8/
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00000000	44 63 32 4E 54	4 51 7A 4D 6A	45 77 4C 79 34 74	4C 43 73 6C 42 4F 43 4F 56 48 78 41 67 4D 42 41 41	Dc2NTQzMjEwLy4tLCs1BOCOVHxAgMBAA
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00000100	5A 68 67 64 76	5 6F 5A 53 38	6F 46 39 78 6C 59	66 77 64 4E 74 52 46 35 2F 52 52 31 2F 42 77 46 69	ZhgdvoZS8oF9x1YfwdNtRF5/RR1/BwFi
00000120	61 2B 2B 0A 42	2 41 75 42 6B	74 67 54 75 2F 4B	7A 4F 52 73 6A 63 4E 50 7A 72 64 30 75 54 43 62 54	a++.BAuBktgTu/KzORsjcNPzrdOuTCbT
00000140	47 36 68 57 38	3 59 50 4B 32	52 4F 56 4F 4F 65	41 4D 48 65 6B 38 4E 6C 33 2B 53 57 35 77 64 65 5U	G6hW8YPK2ROVOOeAMHek8N13+SW5wdeP
00000160	48 75 57 77 02	1 4D 64 6A 44	44 6A 71 78 58 44	6E 73 2B 5A 43 31 64 32 43 70 7A 35 56 2B 78 2B 32	KuWw.MdjDDjqxXDns+2C1d2Cpz5V+x+2
00000180	7A 6E 4F 59 40	30 62 73 45	4B 65 69 3U 73 57	6C 37 4C 51 4B 42 67 44 66 41 42 4B 38 2B 6A 6F 44	znOYLUbsEKeiUsWI7LQKBgDiABK8+joD
000001A0	4C 64 62 46 54	1 UA 44 4A 2B	1 79 33 50 54 54 7A	6B 71 43 69 31 4C 32 71 45 6A 67 78 64 67 31 69 79	LdbFT.DJ+y3PTTzkqCi1L2qEjgxdgliy
00000100	5A /3 68 4A 54	± 65 48 55 63	6B 53 59 56 79 4B	42 65 48 42 74 42 33 46 77 77 71 58 56 61 36 69 46	ZShJIEKUCKSIVYKBEUBUBUBUBUBU
00000120	45 48 4A 65 40	. 46 UM 65 77	46 45 36 75 68 56	53 69 6F 72 35 48 47 50 41 72 46 68 73 4F 51 30 76	ENJELF. EWFEBUNVS10F5HGPAFFnSOQUV
00000200	39 6F 62 31 4F	1 43 56 37 50 1 60 68 01 70	1 38 4D 39 39 71 4E	34 58 70 60 60 58 2F 78 73 30 35 48 67 51 43 56 68	90DINCV/P8M99qN4XpImX/XSU5HgQCVn
00000220	39 61 40 57 74	1 09 01 UA 70	1 46 43 63 60 4A 53	51 68 49 69 45 67 46 76 34 64 46 42 73 55 39 48 42	Sanweite.procemosojiiegnx4unbs0505
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00000280	5A 57 60 7A 63	0 00 00 75 08 7 40 42 41 67	L 3A 37 39 6A 64 33	34 /0 01 32 /0 09 04 4/ 30 01 39 32 30 /3 49 40 0D	ZUNZCHKU. ZU9JU54VAZXIUGVOIZVSINK
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00000320	74 41 47 47 55	5 38 60 51 43	44 55 01 79 55 40	6D 39 56 37 69 77 71 54 45 34 73 48 68 79 48 47 42	t AGGUS 17TDU WIMWW71waTF4=Kkyol C
00000320	70 40 54 69 77	7 71 54 45 24	1 73 48 68 78 4F 46	4F 41 6F 47 41 46 49 6F 76 54 73 41 4F 6P 61 75 57	nMTiwaTF4=KkyOFNioGiFIngTeiOkeyW
00000340	33 63 72 64 31	1 57 75 57 1 58 66 78 4D	1 68 78 69 01 74 55	6R 61 70 64 51 71 67 77 76 46 68 51 75 6F 75 4F 49	3crd1%fyMbyi tUkendOclasEb7uouNI
00000380	79 62 66 45 48	2 66 57 36 57	68 61 74 67 68 42	44 79 71 66 35 30 63 45 46 57 58 4D 48 37 56 6B 38	whfFofM6WkitchBDwcf50cFFWXMJ7Wk8
00000330	6D 72 36 63 77	7 54 6F 73 50	1 76 59 48 55 01 56	58 4B 55 43 62 6C 72 65 74 4C 54 65 55 39 35 54 6C	mr6cuTosPuVVII VVVIChlretLTeII95T1
00000320	62 6B 70 72 69	71 50 68 79	28 28 35 62 37 70	51 75 53 69 33 6D 70 4C 4D 69 2B 36 56 67 76 63 60	hkprizBku++5b7n0uSi3mpLMi+6Wowci
00000380	54 74 68 66 59	2 12 33 0D 73 8 50 59 48 67	22 22 33 02 37 70	67 6D 74 65 43 34 66 65 67 59 47 2F 32 46 54 41 6D	TthfYDVNg2JiJn conteC4felVL/2FThm
00000400	54 38 3D 00 20	, 20 20 20 20 20 20 20 20 20 20 20 20 20	45 4F 44 20 52 53	41 20 50 52 49 56 41 54 45 20 48 45 59 20 20 20 20 20	TS=FND DS& DDIVATE VEV
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00000120					•
Offset: 0				Ovenwrite	

Even when you remove the header and footer (-----BEGIN RSA PRIVATE KEY----- and -----END RSA PRIVATE KEY-----) it doesn't tell you much.

As is common practice for transmitting keys, the file is encoded using Base64. There are lots of online Base64 decoders into which you can place this key for decoding (remembering to remove the header and footer first). I used <u>http://www.base64decode.org/</u> which gave me:

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BASE64 Decode and Encode Have to deal with Base64 format? Then this site is mad encode Your data. If You're interested about the inner withe bottom of the page. Welcome!	e f 🔨 ork
Decode Encode	
Decode from Base64 format Simply use the form below	
MIIC2glBAAKBgDfABK8+joDLdbFTDJ+y3PTTzkqCi1L2qEjgxdg1iyZshJTeKUck SYVyKBeOBtB3FwwqXVa6iNEHJeLFewFE6ulEOIcatVp11Zg0ibMfnqTivbd6t8/z 3KzqrFksg9xQiicMactmTqFkm8ro5ODc2NTQzMjEwLy4tLCsIBOCOVHxAgMBAA EC gYATW12FB2BtQbecmSxh6rWiYENZRZhgdvoZS8oF9xIYfwdNtRF5/RR1/BwFia+	^
+ BAuBktgTu/KzORsjcNPzrd0uTCbTG6hW8YPK2ROVOOeAMHek8NI3+SW5wdeP KuWw MdjDDjqxXDns+ZC1d2Cpz5V+x+2znOYL0bsEKei0sWI7LQKBgDfABK8+joDLdbF	~
< DECODE > UTF-8 (You may also select input charset.)	
07>uS JRH5&I)G\$Ir(w *]V%{DD8Zu04糸z⊾Y,P'ifNd9Q[]`mA,a굧`CYE`vKXMyu 9 #p.L&V80ww%9\:□1*□w`ф~□□□ ¢)贱i{-7>uS JRH5&I)G\$Ir(w *]V%{DUJ*+qa4E ≩ zeNG0Z xtpISA;@ww.whtsisilguoectsrehsri.eocu./kIbtehcel y @\$.R @P>eW6XK~Foy+"qqqq□□□□0@yX@@!JNV22=ѼrO%e0H^xxxxxxxMNw2bI* Ņ2m n;`tpAV\{VO&0NUr kzyOyNV澜>L y,ℋ/r4`6&2ik^ えT?	}
	~
< >>	

As you scan through the decoded string of characters you see a string embedded in it which starts to look familiar: ww.whtsisilguoectsrehsri.eocu./klbtehcel y

And if you do a simple swap of alternate characters you find you have another web address:

www.thisisgloucestershire.co.uk/bletchley

Sure enough this is the next stop on the journey, and "Bletchley" is the next answer for the main page:



The page contains a new stream if characters:

2910404C21CF8BF4CC93B7D4A518BABF34B42A8AB0047627998D633E653AF63A873C\

8FABBE8D095ED125D4539706932425E78C261E2AB9273D177578F20E38AFEF124E06\

8D230BA64AEB8FF80256EA015AA3BFF102FE652A4CBD33B4036F519E5899316A6250\

840D141B8535AB560BDCBDE8A67A09B7C97CB2FA308DFFBAD9F9

It looks very much like a modern cipher stream so one has to assume there is a key for decrypting it which of course we were just given on the previous page. So, let's revisit the key we were given.

Files that begin and end with these words have a very definite format. It is known as PKCS#1 and comprises the following elements:

- 1. ASN.1 Header
- 2. Algorithm Version
- 3. Modulus
- 4. Public Exponent
- 5. Private Exponent
- 6. prime1

- 7. prime2
- 8. exponent 1
- 9. exponent 2
- 10. coefficient

Each of these can be extracted manually by partitioning up the hex format of the key. If you do that you see that the web address www.thisisgloucestershire .co.uk/Bletchley is in the component known as Prime 2.

There are online descriptions if you wanted to go this route eg

<u>http://etherhack.co.uk/asymmetric/docs/rsa_key_breakdown.html</u> However, the simpler way is to use a tool such as OpenSSL which is available here <u>http://www.openssl.org/</u> This will give you all of the components of the Private Key by analysing the key file with the simple command:

openssl.exe RSA -in compl.key -text

which outputs the following:

📼 Command Prompt – 🗖 💌	
Private-Key: (1022 bit)	~
<pre>Private=Rey: (1022 bit) modulus:</pre>	^
95:38:e7:80:30:77:a4:f0:d9:77:f9:25:b9:c1:d7: 8f:2a:e5:b0:31:d8:c3:0e:3a:b1:5c:39:ec:f9:90:	
b5:77:60:a9:cf:95:7e:c7:ed:b3:9c:e6:0b:d1:bb:	
04:29:e8:b4:b1:69:7b:2d prime1:	
37:c0:04:af:3e:8e:80:cb:75:b1:53:0c:9f:b2:dc: f4:d3:ce:4a:82:8b:52:f6:a8:48:e0:c5:d8:35:8b: 26:6c:84:94:de:29:47:24:49:85:72:28:17:8e:06: d0:77:17:0c:2a:5d:56:ba:88:d1:07:25:e2:c5:7b: 01:44:ea:e8:55:4a:2a:2b:e4:71:8f:02:b1:61:b0: e4:34:bf:da:1b:d4:d0:95:ec:ff:0c:f7:da:8d:e1: 7a:65:99:7f:f1:b3:4e:47:81:00:95:87:d6:8c:5a: d8:a8:a4:a0:9c:98:94:90:8c:88:84:80:7c:78:74: 70:6c:53:d2:41:f9:3b:e4 prime2:	
77:77:2e:77:68:74:73:69:73:69:6c:67:75:6f:65: 63:74:73:72:65:68:73:72:69:2e:65:6f:63:75:2e: 2f:6b:6c:62:74:65:68:63:65:6c:20:79:20:20:20: 20:20:20:20:20:20:20:20:20:20:20:20:20:2	
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Now find yourself a RSA decryptor. I used one written by Nathan Michaels at http://nmichaels.org/rsa.py

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	//nmichaels.org/rsa.py 🔎 = 🐮 RSA Encryption Calculator 🗙	↑★菜
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	© 2006-2013 N	athan Michaels
DOA D-		
KSA En	cryptor/Decryptor/Key Generator/Cracker	
Directions are at th	ie bottom.	
Public Modulus:	37c004af3e8e80cb75b1530c9fb2dcf4d3ce4a828b52f6a848e0c5d8358b266c8494de29472 7228178e06d077170c2a5d56ba88d10725e2c57b0144eae94438871ab55a75d5983489b31f6 bdb77ab7cff3dcaceaac592c83dc508a270c69cb664ea1649bcae8e4e0dcd8d4d0ccc8c4c08 b0ac9413823951f1	244985 9ea4e2 bcb8b4
Public Exponent:	10001	
Private Exponent:	135b5d8507606d41b79c992c61eab5a360435945986076fa194bca05f719587f074db51179 fclc0589afbe040b8192d813bbf2b3391b2370d3f3addd2e4c26d31ba856f183cad9139538 77a4f0d977f925b9c1d78f2ae5b031d8c30e3ab15c39ecf990b57760a9cf957ec7edb39ce60 0429e8b4b1697b2d	fd1475 e78030 0bd1bb
Text:	0x20 0x20 0x20 0x20 0x20 0x20 0x20 0x20	0x65 0x65 0x20
		v
Hexadecimal	o	
Character String	•	
	Encrypt Sign	
	Decrypt Verify	
	Generate Crack	~

Hence the decoded hex string is:

20 20 20 20 20 20 20 20 77 77 2e 77 68 74 72 65 67 65 73 69 65

74 2e 72 6f 63 75 2e 2f 6b 6e 65 67 69 61 6d 30 32 33 31 20 20

20 20 20 20 20 20 20

If you put this back into your favourite Hex editor you again see a web address that has had each character swapped:

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Untitled1			
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00000020 67 69 61 6D 30 32 33 31 20 20 20 20 20 20 20 20 2	20	giam0231	
Offset: 20	* Modified *	Overwrite	
Offset: 20	* Modified *	Overwrite	

So, swapping back the characters in the string ww.whtregesiet.rocu./knegiam0231 gives you the URL: <u>www.theregister.co.uk/enigma2013</u> Hence, you have the next stop on the journey and, following the pattern where the last part of the URL is the answer for the home page, your next answer is Enigma2013.

This next page presents something new:



The new element is a picture. For anyone who has visited Blecthely Park they will recognise the machine shown as Colossus, the first computer which was used to crack the Enigma code in the Second World War.

As before let's take this image file and open it in our hex editor:

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At first it appears to be a standard jpeg file with the usual header that you would expect. However, as you scan down the file you notice there is another jpeg file header.

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Someone has added a second image to the end of the main image. Using your hex editor it's a simple matter to delete everything before the second jpeg header, save the edited file and try to open this newly shortened file. What you see is this:

www.eveningstandard.co.uk/colossus

As before, you have your next answer (Colossus) and your next port of call.



This page presents you with a URL directly, and in solving puzzles sometimes the obvious answer is the right answer. If you use this web address it takes you back to the start page, and if the pattern is maintained your final answer should be "Secured".

Returning to the start page and typing in your answers:



then reveals that you've followed the trail correctly and you can provide GCHQ with your contact details if you wish to be considered for a job.



If followed the trail correctly then congratulations. If not, even following through with answer sheets like this one can help you understand the mind-set you need to work on the more complex area of communications security. I'm sure there will be more opportunities to put what you have learned to use.