The Email Responder

The Email Responder (ER) is our name for the web process that handled most the emails sent to Acton Hospital, i.e. anything to @actonhospital.co.uk except GHF@ActonHospital.co.uk . Emails to Dr Frunt were responded to individually by members of the setting team.

ER inspects the *to:* address in incoming emails. ER is looking for addresses in the format EXTnnnn@ActonHospital.co.uk and issues one of the following email replies:

- If nnnn is a valid question number the reply includes a single alpha character.
- If nnnn is not a valid question number the reply includes a link to a Rick Rolling video.
- If the email address is not recognised the reply just states that the email address was unrecognised.

Introducing technology into an ATH is always a potential weakness. Having to fix any issues during the ATH may inadvertently raise its importance to the ATHers. This year's ATH was no different. Fortunately, the ER problem that was encountered didn't need correcting and was reimagined as a feature. It appeared that some emails did not get a reply because they crashed the processing, this was traced to the absence of both a *to:* and *bcc:* address. We decided this was a feature since the responses weren't misleading, the ATHers concerned were trying to be too clever and the recorded message says quite clearly "…send an email to…".

One comment that may benefit future ATH setters is that during development we thought the ER and everything that leads to it was too simple. We made it more complex, but returned to its simplest form before going live. As it turned out, more complexity has been seen in the Email Responder than we ever imagined.

Detail of the Email Responder "working".

It all starts with the recorded message on 020 3239 1831. Ringing this gets the following message:

> *"Thank you for calling the switchboard of Acton Hospital. Unfortunately, the switchboard is out of action. If you know the extension you wish to contact please send an email to Echo, X-ray, Tango, followed by the four digit extension number at Acton Hospital dot CO dot UK. As an example the email address for Mental Health Appointments would be E, X, T, 9, 9, 7, 6, at Acton Hospital dot co dot UK. Please put your name in the subject line. Our target response time for emails is 99% within 10 minutes.   Please do not leave a message as this facility is also out of action. Thank you for your attention."*

This gives several hints:

- The format of the email address is extnnnn@actonhospital.co.uk where nnnn is the required 4 digit extension

- The email address for Mental Health Appointments is ext9976@actonhospital.co.uk
- The switchboard is out of action - if the switchboard had been working a caller would have asked for an extension or keyed in the required extension. Being put through to multiple extensions would not have been possible.

Our thoughts were that you, the ATHers would try the given email address ext9976@actonhospital.co.uk. The response would be a link to the Rick Rolling video. You would do the same for the other extensions on the Consultant's letter, i.e. 9563 and 9345 and get the same response.

After, this we envisaged Brute Force would be the simplest approach. This would mean sending emails to Acton Hospital starting with an extension number of 0000 and incrementing by 1 until a different response than a link to the Rick Rolling video was received. At extension 0064 a different reply would have been received which included a single alpha character. The same would have happened for 0065 – 0071. From this it should have been a simple step to realise that these extension numbers corresponded to the question numbers on page 2 of the ATH. All that was necessary now would be to send emails for the remaining question numbers. Each would have received a single alpha character in the reply.

What actually happened was different. Examples are:

- 10000 emails sent from 1 email address starting at 0000 – 9999 (we think it's 10000 because we didn't go through them all)
- emails sent with multiple (2 to 100+) email addresses
- the same email being sent repeatedly, sometimes consecutively
- emails sent with 1, 2, 3 or 5 digit extension numbers
- emails sent without the initial EXT
- emails sent with extension numbers of alpha and/or special characters
- emails sent to named persons at actonhospital.co.uk
- emails sent to "departments" at actonhospital.co.uk, e.g. switchboard, athcorp
- emails sent without a *to:* address.
- ....

As we watched your deliberations we sympathised knowing that, in previous ATHs, we could have missed the obvious whilst finding complexity where non-existed.

Email Responder Replies

The three types of reply that ER sends are shown below in the same order as described at the start of this document. Note the use of the word "worth", this with Rick Rolling was another hint towards Rickmansworth. Some teams tried to make something of the 8am and 20,100 restriction, however it is just a limitation of the free quota available with the tool we were using (Google Application Engine), as some teams realised. During the hunt we never hit the 20,100 limit.

From: Acton Hospital [mailto:switchboard@actonhospital.co.uk]
Sent: 04 January 2016 19:10
To: David Kee
Subject: [Ext0068 ☎] RE: test5

Many thanks for your enquiry.

The response from extension **0068** is - **R**

You are welcome to email Acton Hospital as many times as you wish. At 8am each day we allocate resources to process 20,100 emails. Any emails received after the first 20,100 batch of the day we discard and they will not receive a reply. Your email is important to us, it has <mark>worth</mark>, but we do not have unlimited resources. We apologise for any inconvenience this may cause.

From: Acton Hospital [mailto:switchboard@actonhospital.co.uk]
Sent: 06 January 2016 20:49
To: David Kee
Subject: [Ext0001♪] RE: David Kee

Many thanks for your enquiry.

The response from extension **0001** is - https://www.youtube.com/watch?v=dQw4w9WgXcQ&autoplay=1

You are welcome to email Acton Hospital as many times as you wish. At 8am each day we allocate resources to process 20,100 emails. Any emails received after the first 20,100 batch of the day we discard and they will not receive a reply. Your email is important to us, it has <mark>worth</mark>, but we do not have unlimited resources. We apologise for any inconvenience this may cause.

From: Acton Hospital [mailto:switchboard@actonhospital.co.uk]
Sent: 04 January 2016 18:56
To: David Kee
Subject: RE: test3

Many thanks for your enquiry.

Unfortunately, we did not recognise the email address you used. Please review/correct the TO: email address.

You are welcome to email Acton Hospital as many times as you wish. At 8am each day we allocate resources to process 20,100 emails. Any emails received after the first 20,100 batch of the day we discard and they will not receive a reply. Your email is important to us, it has <mark>worth</mark>, but we do not have unlimited resources. We apologise for any inconvenience this may cause.

Email activity during the Hunt

Emails Successfully Processed vs Known Extensions Detected