ICANN Transcription

Transfer Policy Review PDP WG

Tuesday, 12 October 2021 at 16:00 UTC

Note: Although the transcription is largely accurate, in some cases it is incomplete or inaccurate due to inaudible passages or transcription errors. It is posted as an aid to understanding the proceedings at the meeting, but should not be treated as an authoritative record. Attendance and recordings of the call are posted on agenda wiki page: https://community.icann.org/x/LgA_Cg

The recordings and transcriptions of the calls are posted on the GNSO Master Calendar page
http://gnso.icann.org/en/group-activities/calendar

JULIE BISLAND: Good morning, good afternoon, and good evening, everyone. Welcome to the Transfer Policy Review PDP Working Group call, taking place on Tuesday the 12th of October, 2021. In the interest of time, there will be no roll call. Attendance will be taken by the Zoom Room. For today's call, we have apologies from Crystal Ondo, RrSG. She's formally assigned Essie Musailov, RrSG, as her alternate for this call and for remaining days of absence. As a reminder an alternate assignment must be formalized by way of a Google Assignment form. The link is available in all meeting invite e-mails.

All members and alternates will be promoted to panelist. When using the chat feature, please select "everyone" in order for all participants to see your chat and for it to be captured in the

---

Note: The following is the output resulting from transcribing an audio file into a word/text document. Although the transcription is largely accurate, in some cases may be incomplete or inaccurate due to inaudible passages and grammatical corrections. It is posted as an aid to the original audio file, but should not be treated as an authoritative record.

recording. Observers will remain as an attendee and will have access to view chat only.

If you're an alternate not replacing a member, please rename your line by adding three Zs before your name and add "alternate" after your name, which will move you to the bottom of the participant list. Statements of interest must be kept up-to-date. If anyone has any updates to share, please raise your hand or speak up now. Jim Galvin, go ahead.

JAMES GALVIN: Yes. Thanks. I just wanted to let people know here that I will soon be occupying a new role. Most people here who know me, I'm sure, are aware that I am a member of the SSAC as well as the Registries Stakeholder Group. I have been selected to be SSAC's liaison to the ICANN Board, a role that I will assume on the last day of the ICANN meeting at the AGM. I'll have that role going forward for a three-year term.

It doesn't change my role here. I will continue to represent the Registries Stakeholder Group. That is my role here and that is my appointment in this slot. But I thought it was appropriate just to mention to people that I have made that update to my SOI and that I will be having that role also in the background. So thanks very much.

JULIE BISLAND: Thank you, Jim. All right. If you need assistance updating your statements of interest, please e-mail the GNSO Secretariat. Please remember to state your name before speaking for the

EN

recording and the transcription. Recordings will be posted on the public wiki space shortly after the end of the call. And as a reminder, those who take part in the ICANN multistakeholder process are to comply with the Expected Standards of Behavior. Thank you and over to our chair, Roger Carney. Please begin.

ROGER CARNEY: Thanks, Julie. Welcome, everyone. Two weeks out from ICANN 72. Specifically, almost exactly two weeks to our session for ICANN 72, which I believe is Tuesday, October 26th. I think it's 17:30, if staff can make sure that that's correct—17:30 UTC.

Jut a couple updates before we jump into our reviews for the day, our discussions. We have the first pre-ICANN webinar this afternoon, actually, to go over policy. I think that's actually just in a few hours—three or four hours from now. We'll be giving an update on our transfer work, which obviously has been going well. So good news from us. But if anybody wants to attend, I think it's four hours from now. Again, it's the general policy update for the pre-ICANN work.

Also, I just wanted to mention, if you haven't looked at the losing or gaining working documents, please do so. Staff has added quite a bit of information on there, specifically on the losing FOA working document. Candidate recommendations have been placed at the bottom of the document. So please go through those and look through them. Provide comments, questions. We'll cover those in a future session meeting. So please go in there and review them, as well as on the gaining FOA document, at the

bottom, there's a draft for a very thorough rationale about the changes to the gaining FOA.

So please take a look at both of those documents. Again, we'll be reviewing those things in upcoming meetings, just like we've been doing last meeting and this meeting on the candidate recommendations of the TAC. So once we get through a couple more things, we'll circle back to those. So take a look at those. Make sure you get to read through them and get any comments or questions added to the documents.

I think that is all for me, except I will open it up to anyone that has any stakeholder group discussions they've had over the past week, anything they want to bring forward for discussion or just comments about any work they've been doing with their groups over the past week, just to make sure to give everybody some time here on anything they were doing on the side here. Perfect. Thank you, Emily, for the session time.

Okay. Well, let's go ahead and jump into our agenda, then. Again, we're just going to continue working on the candidate recommendations from the TAC that we started last week. Hopefully we can get through some more of them. We had great discussions last week, really, on the syntax and formatting of the TAC itself—a lot of great discussion and thought put into that. So we're going to continue with that and I'll just turn it over to Emily so she can keep working us through those.

EMILY BARABAS:	Thanks, Roger. Hi, everyone. Last week, as Roger mentioned, we started to go through the Auth-Info Codes working document, starting on page 16, where we have some draft responses to charter questions and what we're calling candidate recommendations, which are the initial text of potential recommendations for your consideration. What I'm going to actually do is just skim through a couple of revisions that we made since last week, based on the feedback from last week's call. And then we'll dive into the ones we haven't spoken about yet.

So candidate recommendation one remains unchanged. Candidate recommendation two, we had this question from one of our members of the ICANN Contractual Compliance Department about whether the term "authorized person" was indeed the term that the group wanted to use, noting that that's not an official term that's defined anywhere in the Transfer Policy.

And the feedback that we received initially was that the group did want to keep this term but wanted to indicate that a person is essentially authorized if they're the one who has access to the TAC. So that's how they're demonstrating that they are, in fact, someone who has permission to conduct a transfer. So we have updated the language there to be consistent with that intent. Please take a look at that and if you have comments, let us know.

On candidate recommendation three and four, the initial feedback we received on last week's call was that the group supported making these recommendations about the composition of the TAC quite a bit less specific. So rather than specifying a particular number of minimum characters and a particular minimum set of characters—so one uppercase, one lowercase, and so forth—that

EN

the group would instead recommend, potentially, that ICANN set in the policy some minimum requirements based on the most recent standards for password security. So we wanted to run that by the group and see if there is, in fact … Can you hold on one second? I'm sorry. Just one moment.

Sorry about that. So the question is, is there in fact support for the more general recommendation about ICANN Org setting the standards for complexity of the TAC and the recommendation being more general? If there are suggestions about specific language that could be used around that, we're certainly going to welcome it. If there are specific standards that the group would like to point to, NIST was previously discussed. Feedback on that is welcome. Otherwise, we'll propose some language from the staff side that's a bit more general and the group can certainly refine that.

In terms of candidate recommendation number five, there was some support for specifying that the registry should verify that the TAC meets the requirements set out above at the time that the TAC is created. So we've added that language in.

And then, for candidate recommendation number six, there was some discussion that the registry will notify the registrar of record after a number of failed attempts and that the registrar of record would then have the option to notify the registrant. And there was some support expressed for using this notification rather than blocking a transfer following a certain number of failed attempts in light of some feedback that was received from an ICANN Org SME that this could be essentially gamed to block a transfer from happening by a nefarious actor.

So it sounds like there's some support for potentially … There were two options for this candidate recommendation. It sounds like there may be some support for going with the first option. But again, if there's feedback on that, please do provide that input. Okay. I'm going to pause for just a moment because I see Jim's hand up and I'd love any input that he has here. Thanks.

JAMES GALVIN: Yeah. I want to understand a little more about what recommendation six is looking for—what we're really trying to achieve. What I would expect is that with recommendation five suggesting that the syntax of the TAC be checked by the registry, I'm not sure what recommendation six is achieving. Beyond the syntax, what other check is going on here? What is recommendation six checking? Because there shouldn't be any other reason for a TAC to fail. So if someone could speak a little bit about that, help me to understand what's going on there, that would be good. Thanks.

ROGER CARNEY: Hi, Jim. Yeah. I think the goal here was that, obviously, the syntax will be known to anyone—the correct syntax. The goal, I think, here was to stop someone from trying to brute force—multiple reasons here—brute force trying to guess it, which would be difficult, but also trying to do something. They don't have to have the actual TAC. It would be just something that they could create and if the syntax is right, then it's right. But obviously, the syntax being right and it matching is two different things.

So this is where the syntax is correct and it doesn't match and it appears that someone may either have the wrong one and they're actually trying to do it correctly or someone's actually trying to break the system and try to get in somehow. I think the goal here would be just to notify registrar of record. And they could either go out and communicate to that registrant or something like that. That was the purpose. Thanks.

JAMES GALVIN: If I can respond, I guess … Okay. So the clarity that I take from your comment is that what recommendation six is referring to is when a gaining registrar is attempting to enter a TAC, which is what distinguishes it from recommendation five, I believe. Recommendation five is about the incumbent registrar entering the TAC. Is that correct?

ROGER CARNEY: Thanks, Jim. I would say yes. That's correct.

JAMES GALVIN: Okay. So this is interesting. I think that, to be fair, I do want to acknowledge on behalf of Registries that this is a discussion point that we'll have to take back and talk to our team about—this idea that a registry would suggest that a registrar could no longer make transfers if they get it wrong x number of times.

I'm not sure that's a good place to go, to be honest with you, and I think that's going to need some more discussion here because if that's the path that we're headed down here, then that also puts

an obligation on us to provide a process by which that lockdown, if you will, can be undone. What's the process for undoing the lockdown and what does that mean?

So I want to ask that question about the lockdown here—where we're going to go with that. And then I just want to acknowledge that this recommendation is going to need broader discussion on our side amongst the registries about whether we really are supportive of going in this direction or not.

ROGER CARNEY: Thanks, Jim. And something that Emily brought up, and obviously I think we had discussions on, is I don't think we're looking for a lockdown. I think we're looking for a notification that just goes to the registrar record, that says, "Hey. Someone's attempted to transfer this x number of times in the last hour." And it's not trying to stop anybody, or stop a registrar, or stop the gaining registrar either way. It's just a notification saying, "Hey. Something's not going right here." It could be for different reasons. But we're not looking for a lockdown, is what I remember. So just to try to be clear there. Any comments, Jim.

JAMES GALVIN: Yeah. Okay. Thank you. So then, the questions that I have in my mind that we will have to take back to the Registries is, first, the idea that you're looking for a notification specifically out of this process. That's a new feature, a new step for registries to take on. And we'll ask that question. The second thing is looking … The syntax, the notification is the second thing.

And then the third thing is realizing that if you want to be notified, as registrars, the question that I would ask is how would you like that notification sent and where would you like it sent. Obviously, this would have to be automated which would mean registrars now also have a consideration of how they want to receive those notifications and what you're going to do with them. So we would need to specify that process.

One suggestion that I had, that comes to mind—I don't know if you have any others—but perhaps it's just a poll message that gets put to your queue of the registrar of record that tells you that this is going on. I'm not sure if you want to try to do anything else about it. But if you have a particular solution in mind, that needs to also be communicated and that becomes a requirement on you folks—well, on registrars—to deal with that. And of course, again, we'll have to ask whether this particular feature that Registries are comfortable with. Thanks.

ROGER CARNEY: Thanks, Jim. And that was the exact same method that I thought, originally. The first thing that popped in my head and really the only thing that seemed reasonable was through a poll message. But yeah. Again, open for discussion, as you mentioned. And if there are different requirements than that, then obviously we would need to get detailed and the Registries would have to discuss that. Theo, please go ahead.

THEO GUERTS: Yeah. Just to support the mention of doing it through the poll message. That's a good idea. I think we should move forward to that. Thanks.

ROGER CARNEY: Thanks, Theo. Greg, please go ahead.

GREG DIBIASE: Yeah. Just out of curiosity, if anyone knows, has anyone encountered this? Do we have any data that someone has actually successfully transferred a domain by purely—like they didn't have access to the account. They just brute-forced the Auth Code. No opinion one way or another on this recommendation. I'm just curious if there's any data that led to this recommendation.

ROGER CARNEY: Thanks, Greg. I don't know of any. I think this recommendation came more up on the side of the transfer is immediate on execution now. So there is no registrant response needed to this any longer once the gaining registrar has it. I think that that's where this proposal came in play was this is the last line of defense. And if someone is trying to do that … To be honest, I don't know.

The current requirements are around the Auth-Info, password, Auth Code, whatever you want to call it—what we're calling the TAC now. It's pretty loose right now so the brute force is a probably a lot easier now than it will be when this gets implemented. But again, I think it's not just a brute force but also,

EN

maybe, a systemic problem where the registrant is actually trying to do something in good faith and is doing it incorrectly or missing part of it or something like that. That becomes useful as well. Emily, please go ahead.

EMILY BARABAS: Thanks, Roger. And thanks, Greg for the question. I think that many of these candidate recommendations came out of a brainstorm in the small group that was tasked with thinking about potential security measures. And as Roger said, as part of the brainstorm, one of the questions was what are the various methods that one could use to prevent or reduce the instance of brute force attacks?

I don't recall anyone citing specific data about the amount that that's already happening or the amount that this could reduce that. But of course, if small group members to recall any specific data that they would like to cite, that's certainly welcome. Thanks.

ROGER CARNEY: Thanks, Emily. Yeah. And again, to Jim's point or maybe just jump in and try to help Jim out here a little, these are candidate recommendations. These are not even really draft recommendations because the working group is just seeing them. So once we go through these, we way end up with a draft recommendation. These are just points that got pulled out as pretty good topics that were discussed and helped answer some of the charter questions. So again, I think as we go through this, just recognize these are just very early. And until we actually get a

good discussion going through them, they won't even be considered draft recommendations. Theo, please go ahead.

THEO GUERTS: Yeah. To Greg's point, brute force, I'm not sure if that's the best example. But from my point of view, this is just an extra security measure which is very handy to have when you are going to move forward with no longer sending the gaining FOA. So that makes complete sense to have some additional stuff on the TAC side when you're losing a little bit on the gaining FOA one. That's my point there. Thanks.

ROGER CARNEY: Great. Thanks, Theo. Greg, please go ahead.

GREG DIBIASE: Yeah. Just to really quickly emphasize that I am not implying that a lack of data would undermine this recommendation. I was just curious. And yeah. I think, to Theo's point, the logic does make sense. And any additional protection we can provide or thoughts around that is positive. So just wanted to clarify that.

ROGER CARNEY: Great. Thanks, Greg. Yeah. And it's good. Greg, you didn't miss anything if that's what you're looking for. There was no data that anybody brought forward so great. Holida, please go ahead.

EN

HOLIDA YANIK:	Thanks, Roger. I want to make a little input and question regarding changes made into the recommendation two. I would recommend to leave a definition, "A TAC is required for registered name holder to transfer a domain name." The reason behind that is most of the unauthorized transfer complaints we are receiving are about illegitimate transfer of domains by third parties who had access to domain name accounts or the control panel, like website designers, employees, or registrants' partners and so on.
	So yeah. I had some concerns about the implementation of this definition in terms of how this would add to the security measure that we are discussing about. Yeah. That's it. Thank you.
ROGER CARNEY:	So, Holida, your concern is the removal of the registered name holder part of that?
HOLIDA YANIK:	No, actually to leave it was it was initially considered, "A TAC is required for the registrant transfer the domain name from one registrar to another," and to eliminate—maybe or to make more specific—the previous sentence, the authorized person, and to somehow eliminate or another appropriate party, or unless we are having mandatory positive response to the TAC or transfer notifications—specifically requesting positive response, approval from the registrant—to make it more secure and to prevent unauthorized transfers by third parties who have access to the accounts.

EN

ROGER CARNEY:	Okay. Thank you. Okay. Any other comments? Okay. Great. Emily, do you want to take us on to the next set?

EMILY BARABAS: Sure, Roger. Hi. Before I do, Jothan, did you want to …? Jothan is an alternate today but I think, perhaps, wanted to provide some context around some of the small group work. So, Jothan, I don't want to put you on the spot but if you don want to speak up before we move on—

JOTHAN FRAKES: No. Thank you very much. I appreciate it. I want to follow whatever the rules are in engagement and I am an alternate. But as part of the small team, I guess there's some context. Candidate recommendation six came in the place where, clearly, there would be no other frictions involved in a transfer. So as we adjust different parameters, as we're working in these various different places, such as gaining FOA or notification, etc., sometimes those will affect each other.

And in the case of recommendation six, it came up framed as if there were really no other restrictions. If it was just an almost immediate type of a transfer situation that would be activated with no notifications or no other ability to NACK, then we would want to have some form of protecting from brute forcing.

But obviously, if there are some forms of NACKs or there's some sort of a clawback, rollback kind of capability, we may or may not want this. So I think it was just put in place as a safety net in the event that there were no other sorts of frictions to a transfer that

might protect the registrant and the registration of that domain name. Thank you.

EMILY BARABAS: Thanks, Jothan, for that context. Is there anyone else who wants to comment on that? Or shall we then, perhaps, move on? It sounds like maybe candidate recommendation six is going to be on the back burner for now, and could always be reintroduced, but maybe it's not one that is going to move into the draft recommendations for now, it sounds like. Please let me know if that's incorrect. Okay. Yeah. Open for discussion, as Jim said. Nothing's going away but I think some things will potentially rise to the surface and others will not, as some of the other elements of the recommendations evolve as well.

Moving on, then, to the candidate recommendations under b2. Again, here, I'm not going to go through all the text in the draft response to the charter question. But please do review that. And if you have any concerns, just comment directly in the document. In summary, it says that the working group didn't identify a compelling reason to shift ownership of the TAC. And then the recommendations elaborate on that.

So candidate recommendation seven states that the working group recommends that the registrar continue to own and generate the TAC. The working group further recommends that the TAC is only generated by the registrar of record upon request by the registrant. And when the registrar provides the TAC to the registrant, it should also provide information about when the TAC will expire. Theo, please.

THEO GUERTS: Yeah. Quick question, just process-wise. If I'm looking at recommendation seven, then my mind immediately jumps to the thought like, "How do we do bulk transfers?" Is that still up for discussion later on? Did we put that somewhere in a candidate recommendation? Just asking.

EMILY BARABAS: Thanks, Theo. I think that there was a little bit of discussion that the group touched on in previous deliberations. I think there's more that's going to be discussed in bulk transfers, coming up. Roger, I don't know if you want to speak about that in terms of what we're looking at going forward. But I think for now, there are no candidate recommendations that are specifically focused on bulk transfers because it seems like there's still quite a bit to discuss on that topic.

ROGER CARNEY: Thanks, Emily, and thanks, Theo. I completely agree. I think that we'll have several more discussions around the bulk. Let's keep focused on the individual or small transfers here, knowing, obviously, that some of these things will be slightly different or maybe completely eliminated when we start talking about bulk transfers. Let's just keep focused on the individual single transfers here. Thanks. Kristian, please go ahead.

KRISTIAN ØRMEN: Thank you. I think I understand why Theo mentioned it because for a recommendation like number seven, especially where you said the registrar provides the TAC to the registrant, what quite often happens is that large resellers move a portfolio of domains from one registrar to another. In this event, the TAC will not be provided to the registrant but the reseller will take it out from one registrar and give it to another in order to continue the operation they have in agreement with the registrant. Thank you.

ROGER CARNEY: Great. Thanks, Kristian. Yeah. I think, again, when you look at it as a bulk operation, that may not work. But I think let's stay focused on the individual or small transfer here. And if we need to revisit it, obviously, and have to add some specific here, when we talk about bulk, we can clarify a recommendation in bulk on this issue as well. Okay? Kristian, is that an old hand, I assume? Great. Thank you. Okay. I will turn it back to Emily. Thank you.

EMILY BARABAS: Thanks Roger. And just to highlight, as Roger said, none of this is final at this stage. It's not going to be final after this pass. The plan is really just to get some things on paper that the group is starting to show some support for, at least in certain scenarios. And there's definitely time to come back to these after further discussions to tinker with them or create additional recommendations that specifically deal with bulk or other scenarios that aren't addressed here. Please don't feel like you're being caged in with this. But we do want to try to put some things

in front of everyone to see where there's agreement and where there's still further discussion needed.

Candidate recommendation eight was that the working group recommends that when the registry receives the TAC, the registry must securely store the TAC by using a secure password hashing function. One of our internal ICANN Org subject matter experts suggested using the example of bcrypt. So we've included that here in the initial draft text. Theo, please.

THEO GUERTS: Yeah. You can phrase it like that but we can also do the same as with the other one for the TAC recommendations that we just reference to NIST or whatever is best available or best practices that are outlined by organizations that deal with such encryption or password hashing functions a lot so you always have the best available, available to you.

EMILY BARABAS: Thanks, Theo. Anyone else want to come on that. And I see that Jim is already giving us some suggested language, which is great. That's what we like to see. You're all welcome, of course, to get in there and either comment or suggest edits and should have access to do so. Keiron, please.

KEIRON TOBIN: Thank you. Yes. Isn't something like this already in place at the current moment? I just want to understand that a bit more, just in

terms of that someone from the registry could just go into the background information.

EMILY BARABAS: Did anyone want to speak to Keiron's question? Kristian?

KRISTIAN ØRMEN: Thank you. I'm not from a registry but I can say that in at least some registries, with the domain info we get the AUTH-ID in plain text. So this is definitely not in place today but I would love to see it in place. I don't think there's a reason for a password to be, or for a TAC to be saved in plain text. But I do know that it will probably happen, as well, in the future at some registrars since when they're generated, they have to provide it to a reseller and so on. But I don't think there's a reason to do it at the registry level. So I really do support this recommendation. Thank you.

EMILY BARABAS: Thanks, Kristian. Anyone else want to speak to this? I see some support in the chat. Jim, please.

JAMES GALVIN: I guess I have a question here about this. I'm generally supportive of the security requirement in principle. But my question is that registries have their own set of security requirements. This is interesting to suggest that we want to be very specific here about protecting the TAC from disclosure on the registry side. I'm not

aware that such a specific requirement exists. I could be wrong but I'm not aware that it does.

It certainly makes sense from an ordinary security perspective. I'm just wondering whether this is the right place to be prescriptive about that level of detail. I don't have the answer but it is and interesting point and it's interesting that it came out here in this discussion. So I think that leaving it here for now is okay by me, representing a registry. But I do think it becomes another question that we'll ask our broader group about, just to see if anybody has any strong opinions about it.

So for this group, I leave the question of, "Gee. This is a pretty prescriptive requirement to put on a registry. Is that really what you want here in this place?" Thanks.

EMILY BARABAS: Thanks, Jim. Anyone else want to speak to this particular item before we move on for the moment? Okay. So candidate recommendation nine, "The working group confirms that the following provision of Appendix G: Supplemental Procedures to the Transfer Policy contained in the Temporary Specification for gTLD Registration Data, which states, 'Four, registry operators must verify that the Auth-Info code provided by the gaining registrar is valid in order to accept an inter-registrar transfer request.'" Any comments on this one?

Okay. Seeing none, I will then move on to the candidate recommendations under item b3. Sorry. Did I miss a new comment from you? No. This was about the hash. Okay. Jothan is

asking whether this means that there's a mechanism to validate the TAC other than the transfer. "Needs brute force protection per recommendation six." Oh. I'm not sure if I'm allowed to ask for clarification there, given that Jothan is an alternate. But I see Sarah's hand up. Please go ahead.

SARAH WYLD: Hi. Thank you. I actually would argue against Jothan—answer yes. I think the answer is yes. There is a mechanism to validate the TAC. Isn't the registry supposed to do that? I think what we're saying here in this recommendation is that when, in rec seven, the registrar generates the TAC, they generate it and they're sending it to the registry. The registry receives it and must store it. The registry must also validate that it fits the appropriate formats. I think that's what this says. Am I wrong? Thank you.

EMILY BARABAS: Jim, please.

JAMES GALVIN: I observe that there's actually two kinds of validation going on here, which could occur in one of two places for that matter. So there's validate from a syntactic level, which we got to in one of the earlier recommendations, recommendation six. So that seems like a fairly natural thing for a registry to check, if we're going to have any minimum requirements on a TAC in that way.

There's also the validation which is, "Should an incumbent registrar be able to look and see if the registry has the right TAC

stored?" That's a form of validation, too. I would say, my opinion … Another form of validation is the gaining registrar submitting a TAC, which the registry would then hash in whatever mechanism it's using and then it would compare the hashes.

So in principle, what's going on there is the registry never actually knows in clear text what the TAC is. What that means is an incumbent registrar, once it submits a TAC, could never check that the registry has the right TAC. There's no validation that's possible in that space because it doesn't make any sense. There's no transaction to execute on that. You can't even do an info and ask for it because I would say that the registry should never disclose it. It never actually returns it in any way.

If an incumbent registrar is concerned that the TAC is not correct, it simply creates a new one and stores that. That's the way out of that. And there's no way to check that the registry has the correct one in the background. So if that's the validation that Jothan is after, that's my comment about that. And yes, the registry can validate the TAC, simply because that syntax validation is done before it does the one-way hash or whatever and then stores it.

So it's in plain text, all the way until the registry has it and is about to store it. So it exists, in an open form, in the EPP transaction, although keep in mind that EPP is inside of an encrypted tunnel, all done inside of TLS, so there's no eavesdropping on any of that. Thanks.

EN

EMILY BARABAS:	Thanks, Jim. Anyone else on this particular item? Okay. Seeing none, again, if folks have additional input, please do feel free to add it directly into the document or questions are also welcome.
	So b3 does not have any candidate recommendations associated with it. The question was about whether there should be a change to the five calendar days requirement for the registrar to provide the Auth-Info code to the registrant. And for this particular question, the working group did not come to any agreement to change that—to make it shorter or anything. So for now, we don't have a candidate recommendation on this topic. Roger, please.
ROGER CARNEY:	Thanks, Emily. I wonder if our candidate recommendation—and maybe it's not even that, whatever it's called—is simply that the working group agrees that this should stay. Maybe that's not a recommendation. I don't know what that's called, Emily. Is that confirmation, recommendation? Maybe we haven't even got to that spot yet in the working group. I thought we had agreed that the request for the TAC had a five-day window. Maybe it's as simple as that it stays the same. I don't know.
EMILY BARABAS:	Thanks, Roger. I think if there's agreement that the group wants to affirmatively state that it thinks the five-day window should remain in place as it is, that can certainly be a recommendation. I think it's fine to phrase it that way. As you suggested it, I think if we don't hear any objections from folks, we'll go ahead and add that in under this charter question. Any comments? Keiron, please.

KEIRON TOBIN: Thank you. It's calendar days where I start to struggle here. I don't know how other people feel about that but I think five days in general as opposed to "five calendar days." Thank you.

EMILY BARABAS: Thanks. Any other comments on that? Theo, please.

THEO GUERTS: My question would be, what would "five days in general" be? "Calendar days," that's a very narrow definition, while "general days," I don't know. I always feel that we go down a rat hole with certain holidays being counted, being used, being not, and then you end up like it could be three days to 10 days depending on what kind of holidays you are counting, or using, or accepting. So "general" seems very broad. "Business days" or "calendar days" is pretty narrow. Thanks.

EMILY BARABAS: Keiron, please. Do you want to speak to that?

KEIRON TOBIN: Yeah. I think just generally 120 hours, five days. So yeah. "Five calendar days," I think, is probably a better kind of—as opposed to "five working days." Thanks.

EN

EMILY BARABAS: Thanks, Keiron. That's a good clarification. So we could say that it's a number of hours rather than a number of days. Does anyone have objections to that off-the-bat? Otherwise, we'll put that in as … And Theo is confirming that he supports that so we'll put that in as a candidate recommendation, and again, folks can always comment. Anything else on charter question b3? Seeing none. I see Sarah says that, "Hours are confusing but one can bring a calculator."

Okay. So with b4, this is about TTL. And there were two candidate recommendations. One was about a maximum and one was about a minimum TTL. Tentatively, we have the maximum set in the recommendations as 14 days, simply because that was a number that had been discussed in some of the initial conversations. But again, these are bracketed and that means that there is plenty of room for discussion if folks want to adjust that. There has not yet been a proposal for a minimum on the TAC. So at this point, we've left that open and the group would need to fill that in.

I did want to mention that one of our ICANN Org subject matter experts mentioned that there might be some confusion from registrants about having a maximum and a minimum where different registrars have different TTLs. And the suggestion from him was that there would just be a single default TTL across the industry so something to consider for the group.

And there's also a comment here from Compliance. If Holida wants to speak to that, that's great. Otherwise, I can summarize it after Roger speaks. Roger, please.

ROGER CARNEY: Thanks, Emily. I don't know if it needs to go in here, but probably, I'm assuming the group will want it to. I think that this TTL was more specific toward the registry, not the registrar, so that the registry would enforce a maximum and minimum TTL, so that registrars were bounded, still, by some requirements of the TTL, even though they could set them anywhere in between.

So if a TAC is created and there's a registrar out there that's lazy, or goes down, or whatever and they don't have a chance to update it, that 14-day maximum would be enforced by the registry. And likewise, a registrar that's not wanting people to transfer out, the discussion we had was around making sure that there was a reasonable minimum set. And again, that minimum couldn't be set by the registrar, so to say. It would have to be set for the registry. At least that was how I remember the discussion. Kristian, please go ahead.

KRISTIAN ØRMEN: Thank you. I just wanted to say that I definitely support just having one single TTL for all of them. It just makes it so much simpler to work with, especially for registrants. But I also want to say, again, that it's very, very important that we have a way of cancelling out that TTL if we get aware that maybe the registrant gave it out to someone wrong or something. So as long as we can delete the TAC or something like that, then it's good. Yeah. Thank you.

ROGER CARNEY: Thanks, Kristian. I think that was the idea, was if the, as Jim says, incumbent—the sponsoring registrar—sees an issue, they can

EN

blank that or change it, not the TTL specifically but the TAC itself, so that it would change everything. So, Jim, please go ahead.

JAMES GALVIN: Yeah. Thanks, Roger. I know I said this early on so now is just a good time to restate this and acknowledge this question that we will again have to … This is a question that we'll have to take back to Registries in general and ask. I'm not certain that having registries enforce a TTL is the right model here. I would like to have more discussion about what it is that we're trying to achieve by enforcing a TTL.

On the other hand, something that I would suggest would be useful to have included here, since we're going to make this TAC be, essentially, a one-time use is a recommendation that actually states that the TAC can only be used once, with mean once it compares equal to something a gaining registrar submits, then the registry should blank it out. That's a useful recommendation to have and make clear that it's a requirement so that the TAC is single-use.

I'd like a little more discussion on this TTL feature and how it is— or what we're trying to achieve by having the registry have any role in managing the TTL as opposed to registrars being completely open to what they want to do and what they might enforce. Thanks.

ROGER CARNEY: Great. Thanks, Jim. Great comment on the one-time use because we've mentioned that multiple times and we should definitely get a

recommendation around that one-time use and how that functions. And I'll open it up to the group. This is the perfect time to talk about it.

This TTL is … I agree with Jim. I love the idea of registrars having the flexibility. I just have concerns about bad actor registrars that try to set too low of one or maybe even something that goes wrong at a registrar and the TAC is available for too long, they can't get into their system, or whatever it is—just as an extra precaution of setting these bounds, an upper and lower, at the registry, with the registrars having the flexibility of anywhere in between, basically. Kristian, please go ahead.

KRISTIAN ØRMEN: Thank you. Personally, I think that the best technical solution that would also make sure that there wouldn't be too many, at least, registrar errors is that at least the registry would verify when the gaining registrar sends in the transfer request with the TAC, they verify that the TAC isn't older than 14 days, for example, if we choose that. By doing that, they basically verify the TTL.

And that's easy if we have a standard TTL day for all TAC—for example, 14 days, as recommended here. By doing that, the registrars don't have to set a new TAC, which is what basically happens today, that if you want to null out an AUTH-ID we have to set a new one. By doing this, we set one. After 14 days, it might still be in the database. But since the registry verifies it, at the request it will see that this one is too old so it doesn't work anymore.

By doing that, also, we don't' have to think about any protocol changes to EPP or the way we communicate with each other and we make sure not to have any problems like what you just described with a registrar system that stops working or something like that and doesn't send in the new tech, or the null out, or whatever they would like to. I just think we will get less errors if the registry verifies that the TAC is not too old. Thank you.

ROGER CARNEY: Great. Thanks, Kristian. Theo, please go ahead.

THEO GUERTS: I agree with Kristian there. That's a great suggestion. We should definitely look into that one. One-time use of the TAC? Yeah. It sounds like a very good suggestion, also. Yeah. And then the minimum time to live? Yeah. That should be something. I'm not sure what. You don't want to have it too short. You want to give registrants the time, the chance to make sure that they can transfer a domain name within a reasonable period of time. So that can't be too short but I'm not sure what it is. Thanks.

ROGER CARNEY: Great. Thanks, Theo. I think the minimum, obviously, is for a few reasons. Maybe some of our corporate domain registrars or something can provide some insight on higher-value domains. They don't want to go 14 days long with a TAC in the open. Maybe it's a day for them. But maybe they have a better idea on the minimum of being realistic so maybe we can get that from one of them. Jim, please go ahead.

JAMES GALVIN: Thanks, Roger. Just continuing this discussion a little bit on managing the TTL. Let's dig into this a little big here and look, at a practical level, what's really going on. I'm concerned here in this discussion, really, with the role of the registry and the benefit of the role of the registry. So what does it mean of the registry's involved in this process? I should start first by saying I don't fundamentally have an issue with a minimum TTL or a maximum TTL. The only question here is what role a registry should or shouldn't have and why or why not.

With respect to a minimum TTL, the question that comes to my mind is if you're going to have a minimum TTL, what does that mean to changing the TTL. An in particular, what does that mean to changing the TAC? In particular, the scenario is that you've created at TAC and you have given it to the registrant, and the registrant loses it, and they inform you of that, and they do that inside of the minimum.

But if you're going to have a minimum TAC, I would presume that the requirement on the registry is it's a minimum so you're not allowed to change it within that minimum either. So we need to understand the nuances of what that particular step really means. If the registrant has lost it, now what do I do? Can I actually [inaudible] the TAC, inside of that minimum?

Another question that comes to my mind is it's really not possible for a registry to enforce a minimum on a registrar. I just want to make that particular distinction for us here. That is, a registrar can tell a registrant anything they want. A registrar can do anything

they want with respect to that minimum level. If you tell a registry it's a minimum level, then what you're saying is the registry has to make sure that it exists for that amount of time.

But that in no way informs a registrant or supports a registrant directly because the registrar can still presumably make changes to the TAC, based on my prior question, or not. We have to work out all those little details and nuances here.

So if you're trying to protect against bad actors, I think that there's a limit to the protection you can provide about a bad actor. Registrars are all either going to be above board here and do the right thing … And I'm sure that most do and most will so I'm not suggesting and trying to impugn anybody here, certainly not here, that's part of this process.

But I do suggest that the minimum level doesn't seem to provide any real protection for a registrar as a bad actor. Or at least now, it just imposes and brings a bunch of other questions to bear—a bunch of other process that has to be thought through and invented. And that concerns me a bit. I'll stop there and only talk about the minimum this time around—try and get some more discussion here. Wonder what other folks think. Thanks.

ROGER CARNEY:　　　　Great. Thanks, Jim, and very valid points. I think you're right. I think that you have to solve those problems or a minimum doesn't make sense. And to your point on possible bad actor registrars that are doing this just to avoid transferring, maybe that's a

compliance issue that can be tracked via the number of times a sponsoring registrar does update the TAC.

Theoretically, I can see ICANN requesting from the registry. If someone complained that they couldn't transfer their domain, ICANN could contact the registry and say, "Okay. Were they given a TAC?" and then follow through on, "Okay, yes. But every second, the registrar changed the TAC so it wasn't really a good-faith effort."

So I think you're right. I think that either you solve that minimum window of, "Okay. Can a losing, sponsoring registrar change it during that minimum?" I think that that's a discussion that's fair. Or, to your point, maybe, if that's not solvable, then you go to not having a minimum and you have to find a way to solve the issues that way. Kristian, please go ahead.

KRISTIAN ØRMEN: Thank you. I was to agree with Jim here and say I think the minimum causes more problems than it solves. And also, going back to my earlier comment from today that we do need to be able to null it out at any time. And exactly as Jim says, that goes against the minimum.

So yeah. I think we should, instead, maybe … I don't know if we have it already somewhere but maybe have a recommendation saying that to solve the problems with a high-value domain, to have a recommendation that says that a registered name holder should able to cancel or null out the TAC. I think that solves the

problem that the high-value domains are looking for in this sense. Thank you.

ROGER CARNEY: Thanks, Kristian. Okay. I'm getting a lot of feedback in chat and everything that the minimum is probably not workable or doesn't seem to be enough value-add to do that. So unless people want to argue for that minimum, I think that's great. Otherwise, I think that we've talked our way out of this candidate recommendation. Again, great, because that's the purpose is to talk through these and get an agreement, going forward.

I don't know. Maybe Holida can tell us or someone else can tell us. But I don't know if Compliance would need a recommendation because it seems to me that the registries always log all these things anyway. But to be able to track or trace that, if there's a recommendation around that, just to make sure that registries are providing a trail on TAC change and so forth, and so on. But, Jim, please go ahead.

JAMES GALVIN: Yeah. Thanks, Roger. Now, just speaking generally, whether or not there's minimum TTL strikes me as interesting. I was listening to all this conversation from folks here. I have to say that there's a part of me, just speaking as a registrant, who wants to make sure that I've got time to go get my transfer to occur and the transfer to happen. And I think that knowing that I've got at least one day to do that in or something like that just feels like a good model to me.

If you're going to have SLAs about when the registrar has to provide the registrant with the TAC, if they make it upon request, if you're going to say, "Well, I can take up to five days to give you the TAC," then why wouldn't you …? It seems to me, a natural extension of that is to say, "Well, then I have to promise the registrant x amount of time to conduct the transfer."

And having that as a policy … As you're saying Roger, I think the only way to really deal with that, if there's bad actors, is somebody would have to complain. And then Compliance could certainly go looking for logs. You've got to keep all the right entries. And a registrar could easily defend itself or fall flat because it can't if the right thing is not happening.

So yeah. Speaking as a registrant, I'm thinking I'd like to support a minimum TTL on the part of a registrar. I think that's, as a practical matter, a pretty good thing. So thanks.

ROGER CARNEY: Thanks, Jim. So just to reiterate, you're saying that you're not against a minimum TTL but you're saying not as a registry-enforced minimum but a policy-enforced minimum on the registrar. That, again, could be whatever that x value is—one hour or whatever it is. But you like the idea of that feature from a registrant perspective.

JAMES GALVIN: Yes. Thank you for the clarity. To be absolutely clear, that's what I'm saying. Thanks.

ROGER CARNEY: Right. Thanks, Jim. Holida, please go ahead.

HOLIDA YANIK: Just to respond to your question, the clearer the language and instructions are within the policy, it's better for us, for Compliance, and easier for us to enforce them and to investigate the matters reported to us. Thank you.

ROGER CARNEY: Great. Thank you. Kristian, please go ahead.

KRISTIAN ØRMEN: Thank you. I just wanted to respond to Jim that this would be solved if we had a standard TTL instead of a maximum TTL because with a standard TTL, you would basically also have a minimum TTL. And the problem with having, then a too-long TTL for some high-value domains would be solved with the possible to null it. So I really think we should change to a standard instead of a maximum and minimum Also, as I think it was Roger that started stating that ICANN had checked with some expert that said that would make it clear—something like that. Thank you.

ROGER CARNEY: Kristian, you're talking about a standard. Are you saying that's enforced in a policy or enforced by the registry?

EN

KRISTIAN ØRMEN: Well, both, because if it's … Yeah. Both. For example, if we say 14 days, so there is a TTL of 14 days on all TACs. We don't say a maximum or a minimum. We just say 14 days. And if it is 14 days, it will also be much easier to validate this or enforce this from the registry, since they know when a TAC is set, this TAC will always be x days. Thank you.

ROGER CARNEY: Thanks, Kristian. I think you would have to come up with the correct wording because, as you mentioned, blanking or nulling the TAC field, basically, is changing the TTL. So if we state in a policy that the TTL has to be 14 days and you blank it, then you've broken that policy. So I think wording would have to go around there to support that fact. Just my thoughts off-hand.

Sarah, to your comment in chat, that's correct. But when it does have one, it has a TTL. And when you null it, the TTL is no longer the same.

KRISTIAN ØRMEN: I see what you mean but my suggestion earlier, with the null, was that the registered name holder could ask for it be cancelled. So the TAC would have an exact amount of TTL—for example, 14 days. Then again, if the TAC is cancelled, then it's cancelled. It still had a TTL of 14 days but it was just deleted before that time went.

And if the recommendations say that it can be deleted by the request of the registered name holder, it's not the registrar that has a shorter TTL. It's registrant or account holder or whatever

we'd like to put in there that asks for that process to stop that they requested the first time. Thank you.

ROGER CARNEY: Thanks, Kristian. Okay. So there's support for a standard and moving from maximum. I want to see if others agree with that, disagree with that. Again, I think Jim is still … Maybe I'll say he's on the fence of a minimum. He likes the idea of a minimum from a registrant standpoint. So I think that that's still open for discussion. Jim, go ahead.

JAMES GALVIN: Yeah. Thanks. As a registrant, I'm feeling like a think a minimum is a good thing but I'm not going to die on that fence. The registrars, you guys can sort that out for yourselves. I don't care about that. But I do understand the operational considerations that go with that. The only real benefit that I see about having a minimum is it gives you a mechanism for getting at bad actors.

Now, it's a reactive mechanism, not a proactive one. But I'm not sure that that's really where you want to go with that. So just stepping back from the registrant role, that's the only advantage I see to a minimum from an operational point of view is being able to react to bad actors unless somebody else has got some other ideas in mind. So thanks.

ROGER CARNEY: Great. Thanks, Jim. That is a good point, yes. It's not an inline active feature. Like you said, it's more, it's more proactive—or

reactive, I should say, as you said. But yes. Maybe that's more of a helping recommendation for ICANN compliance because if someone complains about not being able to transfer their TAC and the logs show that the TAC was changed every 10 minutes but there no requirement that it has to be longer than that, then what's the issue? It doesn't seem reasonable. But yes. There's nothing stated there. So to your point, maybe the minimum is a feature of reactive response to bad actors.

But I did see in chat a lot of agreement with changing from a standard maximum TTL to a standard TTL of 14 days, but coming up either with wording or a second recommendation around a registrar or registrant being able to nullify or update that TAC at any point during that time. Jim, please go ahead.

JAMES GALVIN: I'll just offer some questions, operationally, about min versus max. I think for registrars, one of the things that's interesting here is whether or not—how much manual process is involved in managing a registration. That should guide the question about min versus max and what it might be or if it's a standard value.

If you want to have a standard value, all of that's fine. And I think the standard value has to give new consideration to smaller organizations that might, in fact, do a lot of their administration internally, manually, for some broad definition of manually. You want to make sure there's time enough for all of that to happen unless you're trying to raise the baseline. So that's useful.

EN

A maximum has the advantage that, again, it gets at a security consideration. There's always a risk. While the TAC is valid, there's always a risk to the registrant. And in the same way that a minimum TTL, if you were to have that, as opposed to a standard—so, just giving some consideration here—if you have a minimum, it's a reactive way to identify bad actors and have a mechanism for going for them.

Maximum is a way at getting at registrars who are not providing what might be called a basic minimum level of security service. You have to provide for the TAC to be valid for a certain amount of time but you don't want it to be too long. There's a risk, while it's valid, that the name can always be transferred.

At some point, you have to turn that off. At some point, the registrar has to be obligated to null it in the registry so that the registry knows that the transfer can't occur anymore. So you need to create a requirement to make sure that the sponsoring registrar takes that action on behalf of a registrant because, again, that's a reactive way to get at bad actors who've got bad practices.

So unless you're going to pick a single value that's going to work for everybody … And I question whether that's a good thing. I think you can have a lower minimum, if you allow a minimum, and maximum. If you're only going to have one value, then it has to have a certain lifetime. And the lifetime will be cut short by the transfer occurring or the registrant cancelling it. But it always has to be visible for that amount of time unless you want complete flexibility at the registrar.

EN

The reason for having these two recommendations … Sorry if I'm going on a little bit here but the reason for having these two recommendations is together, they provide a reactive mechanism for bad actors. Thanks.

ROGER CARNEY: Thanks, Jim. Okay. Any other comments, questions. Obviously, we have some work to update these, to get them into a different form. A lot of discussion on them. Any other comments, questions on these? Okay. we will do some work on these and get them back out. Emily, if you want to take us further now.

EMILY BARABAS: Hi, Roger. Sure. I'm just going to touch on the last two charter questions. And then, perhaps as homework, people can do some more thinking about what they think about some of the things proposed here in the existing text and add their input so that we can process that further.

So b5, we talked a little earlier about bulk transfers. And within this phase, this is the question about bulk. There's more that happens later on. I believe it's in phase two. But this is the question that was discussed here. And for the moment, we just have a bracketed text that says this is going to be discussed further by the group but that there isn't a response yet.

The question is, "Should the ability for registrant to request Auth-Info codes in bulk be streamlined and codified? If so, should additional security measures be considered?" I don't know if

EN

further discussion is needed here but we can also just put a pin that for the future.

And then b6 was just asking if the TechOps proposal is a logical starting point for future policy work. The response to the charter question essentially says yes, it's a logical starting point. And also, the working group is taking into account other considerations and perspectives as it does its work. Back to you, Roger.

ROGER CARNEY: Thanks, Emily. And I would say, for b5, I think the key here—and maybe that's why Theo raised his hand—is this says for registrant to request to Auth Code. I think that later on in our discussions, we have discussions about the bulk transfer that's being done by other people, not registrants. Specifically, there's one on ICANN. But also, I think we have a later one that maybe is more relevant to resellers. Maybe Berry can help me remember if that's the actual one there or if we're going to try to cover it here, which then implies that it's bigger than just registrants. So just wanted to call that out. Thanks. Theo, please go ahead.

THEO GUERTS: If we could answer the question … You just read my mind. If we could expand a little bit on b5, what that entails, not just to registrants but the other stuff we just mentioned. And if resellers are in the mix or authorized persons, this may be also a good idea. If those entities are in the mix to be discussed in phase two, yeah. That would be great.

EN

ROGER CARNEY: Great. Thanks, Theo. We'll get that clarified. Okay. I think, Emily, that took us to the end. Did it not?

EMILY BARABAS: It did and we only have a couple minutes left. Would it be helpful to just very briefly highlight what we're going to be discussing next for the group?

ROGER CARNEY: That would be great.

EMILY BARABAS: Okay. So switching gears, our next topic that we're going to be discussing is additional security measures. I'm going to drop the working document in here. I think this will probably be the next call. This working document is set up very much like the other working documents. Oh. I see Kristian has his hand up. Kristian, was this on the previous topic? Do you want to hop in?

KRISTIAN ØRMEN: Yeah. But it was a short comment, just to follow from the chat, that we should also look into who verifies the TTL but we can do that at another meeting.

ROGER CARNEY: Okay. Thanks, Kristian. Again, I think that we do a great job talking here. But anybody that has any comments or anything can throw those into the working documents themselves, too, just as a

EN

placeholder so that we can come back and look at them when we need to or while we're reviewing them. So it's great to discuss them here but if we don't touch something or something comes in mind, add them to those working documents so that we can get them addressed. Thanks. Thanks, Emily.

EMILY BARABAS: Sure. Thanks, Kristian, for that. All I wanted to mention here was that like the other working documents, we have the applicable text from the existing policy. We have a working definition of a locked domain from the ICANN Org website. And then there's just one charter question for this topic that is included in scope for this group, based on some feedback from the survey that was part of the Transfer Policy Status Report.

So we have the responses to the questions in the survey below, for your reference. And I'll just read out the question and perhaps folks can think a bit about their perspectives on this question for the conversation next week.

The question is, "Survey respondents noted that mandatory domain name locking is an additional security enhancement to prevent domain name hijacking and improper domain name transfers. The transfer policy does not currently require mandatory domain name locking. It allows the registrar to NACK an inter-registrar transfer if the inter-registrar was requested within 60 days of the domain name's creation date as shown in the registry RDDS record for the domain name or if the domain name is within 60 days after being transferred is mandatory domain name locking

an additional requirement the working group believes should be added to the transfer policy?"

That's the core of the question. And of course, if there are additional security measures beyond that specific question that the group wants to consider, it could also be discussed under this charter question as well. Back to you, Roger.

ROGER CARNEY: Thanks, Emily. Yeah. And again, I think the key here, to what Emily said, is let's looking at the locking as the key feature here. We've really covered additional securities throughout—not we've covered them all, for sure. But we've already added some additional security things that we've thought of. But let's focus here on the locking. Does that make sense? Should it be mandatory? What locks should be mandatory—things like that, along with any measures that we've discussed already, is important.

So think about those things between now and next week. And again, add your comments in this document here and we can cover them. And we'll talk about them next week as well.

Okay. Well, thank you, Emily, for running most of the call today. Is there any other questions or comments before we close this out today? Okay. I'll just add, again, what I started with. Take a look at the documents. Staff has added quite a bit of stuff to the losing FOA and gaining FOA, as well as take a look at this document so that we're prepared for next week. And in the background, we'll be working on updating some of the TAC candidate

recommendations so that we can get our discussion's input on there and updated so that we can revisit those at a later time.

Okay. Any other questions? All right, everyone. Have a great week and we will see you Tuesday. Thanks.

JULIE BISLAND: Thank you, Roger. Thanks, everyone, for joining. This meeting is adjourned. You can disconnect your lines.

[END OF TRANSCRIPTION]