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Requirements for handling abandoned calls and premature disconnects in  
emergency calls on the Internet  
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#### Abstract

The -phonebcf draft currently requires endpoints to disable sending a

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BYE on an emergency call. Insufficient justification and lack of attention to the entire problem has caused comment on that section of the document. This document attempts to define the problem and the requirements to controlling disconnect on emergency calls.

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## 1. Problem Statement

[I-D.ietf-ecrit-phonebcf] currently disallows sending of BYE by the calling UA. This requirement has generated a request for additional capability, and has also caused some to question why it is needed, and how the mechanisms interact with current and future emergency call systems. There are two aspects of handing emergency calls that give rise to the discussion.

### 1.1. Premature disconnect

Occasionally, when on an emergency call, a caller hangs up the call before the call taker is finished acquiring enough information. Emergency calls are stressful, and mistakes are inevitably made. A mechanism is needed to re-establish communication between the caller and the call taker when this happens. The PSTN has a feature available, "Called Party Hold" (CPH) which is used in some jurisdictions to meet this requirement. If the user hangs up When CPH is engaged, the call is not torn down, but instead is maintained despite the "on hook" condition. The call taker may also have a mechanism (called "Ringback" which is different than call-back) to ring the user's telephone. If the handset is picked up, since the call is still active and resources maintained, the caller and the call taker are readily reconnected. Called Party Hold is a feature that has long been available in wireline networks, but is not currently implemented in wireless networks. Some jurisdictions are desirous of maintaining their current PSAP call disconnect control capability, while other jurisdictions would like to regain access to those capabilities. Still, in other jurisdictions, the function may not be needed or desired, even in jurisdictions that want to have the feature, it may not be desirable in all circumstances. For example, if the call is queued due to congestion, it is undesirable to hold up the call and user initiated disconnect should be permitted.

### 1.2. Abandoned Call

It is not uncommon for an emergency call to be cancelled before it reaches a call taker. Abandoned, in this context, means that the call is terminated before a call taker answers it. While it can be that the user is fully aware that the call is being cancelled, and considers the cancellation the most appropriate solution, abandoned calls are problematic to PSAPs because they don't know why the call was abandoned. Unfortunately, what looks like an abandoned call can be a more serious circumstance such as a hostage situation. In some jurisdictions, the PSAP dispatches a police unit to all logged abandoned calls. In such jurisdictions, dispatching resources could be avoided for true inadvertent calling if the call went through, and the call taker was able to assess the actual situation. Other

jurisdictions do not have the resources and may not respond to abandoned calls at all. As with premature disconnect, application of the function depends on conditions. For example, in a mass calling event, an Interactive Media Response unit may be used to answer calls. Abandoning a call answered by a machine may be appropriate. Even if jurisdictions respond to abandoned calls by dispatching emergency personnel in normal situations, they may not in this situation.

There is always a period of time after a call is initiated by a caller before there is any reasonable possibility to determine that a call is abandoned. Since the application of special handling for abandoned call is dependent on conditions, there is an implication that some form of negotiating is needed between the UAS and the UAC to invoke any kind of abandoned call processing. This in turn implies that if the call is abandoned before the signaling negotiation completes, no special handling should be provided. Accordingly, an abandoned call is defined as a call which is attempted to be disconnected prior to the UAS answering, but after any signaling that would enable the feature is completed.

Retaining the connection is extremely important when there is no callback information (e.g., uninitialized phone) or the caller has call termination features active (such as call forwarding, do not disturb) and the PSAP is unable to reconnect via callback.

## [2.](#) Requirements for Premature Disconnect

In the following discussion the entities are the humans who take part in the call.

PD-1 Some times, when a caller attempts to disconnect from an established emergency call, s/he may find that disconnection appears not to work

Rationale: Some callers attempt to disconnect before the call taker has enough information to provide help.

PD-2 When a caller attempts to disconnect, the call taker gets an indication of such an attempt. If the device has a mechanical "hook switch" or similar mechanism that cannot be locked out, and the user picks up the handset, the call taker gets an indication of that action.

Rationale: Knowledge of the caller action gives valuable information to the call taker which may influence how the call will be managed going forward.

PD-4 When PD-1 is enforced, the call taker must be able to cause alerting to the caller which has attempted to prematurely disconnect from the emergency call.

Rationale: The caller believes they have disconnected. The ability to alert is needed to encourage the caller to reconnect.

PD-5 When PD-1 is enforced, the caller must not be able to place another call until the PSAP allows the call to be released. This requirement is not intended to imply a user interface with multiple lines accessible independently is locked to the single line that placed the emergency call. As mistakes can be made, an override mechanism invoked by the caller must be feasible. The implementation must fail safely such that the phone cannot be locked and unable to call for help.

Rationale: Priority must be given to the call taker until such time she/he determines the call can be terminated.

PD-6 If the user responds to the alerting (PD-4), the caller and the call taker must be able to converse roughly immediately. "Roughly immediately" is in human terms: the time from when the caller reacts to the alerting, initialting reconnect, and the time the call taker can resume conversing, and is perhaps a second.

Rationale: If the user responds, caller re-answers.

PD-7 Control of premature disconnect is not needed in all

jurisdictions. It must be possible for the PSAP to not invoke the function and allow premature disconnect to terminate the call as if no special features were present.

Rationale: Whether the function is enabled is a call-by-call decision and takes into account the jurisdiction practice and conditions at the PSAP for the call.

### 3. Requirements for Abandoned Call

In the following discussion the entities are the humans who take part in the call.

AC-1 Where enabled, an emergency call, once "dialed" by the caller, completes even if the caller attempts to abandon it. Normal mechanisms used by the caller to disconnect appear to be disabled.

Rationale: Call takers cannot distinguish between calls which are appropriately abandoned and calls that need response but were cut short. Controls to limit abandonment are needed for those jurisdictions who would otherwise respond to all abandoned calls.

AC-2 The user may note that in some circumstances, a disconnect request initiated very quickly after initiation does succeed.

Rationale: Disallowing call abandonment early minimizes the chances of abandoned calls, but since the conditions at the call taker have to be considered before the mechanism can be invoked.

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AC-3 The user may note that some times, the disconnect works. This may depend on where s/he is calling from, or other conditions. For example, disconnect may work if the call is placed during a mass calling event.

Rationale: Whether the function is enabled is a call-by-call decision and takes into account the jurisdiction practice and conditions at the PSAP for the call. .

### 4. IANA Considerations

There are no IANA Considerations for this document

### 5. Security Considerations

If these features can be enabled by entities other than PSAPs, the entity may gain more control over the end device. Failures of various kinds may prohibit callers from being able to disconnect.

## 6. Acknowledgments

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## 7. Informative References

[I-D.ietf-ecrit-phonebcg]

Rosen, B. and J. Polk, "Best Current Practice for Communications Services in support of Emergency Calling", [draft-ietf-ecrit-phonebcg-06](#) (work in progress), November 2008.

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