

# PAWS BOF

Protocol to Access White Space DB

IETF 80

Gabor Bajko, Brian Rosen

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# Background

## Relevant Drafts

- I-D: Protocol to Access White Space database: Problem statement and Requirements

<http://www.ietf.org/id/draft-patil-paws-problem-stmt-00.txt>

- I-D: Protocol to Access White Space database: Overview and Use case scenarios

<http://www.ietf.org/id/draft-probasco-paws-overview-usecases-00.txt>

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140+ members

# Agenda

- Administrivia (5 min)
- Intro to White Spaces (Raj, 15 min)
- Intro to White Spaces DB (Brian, 10 min)
- Charter proposal (10 min)
- Open discussion (15 min)
- Questions, conclusion (5 min)

# Related IEEE work

- 802.11af amendment for White Spaces Operation
- 802.22 WRAN includes a Database Access Spec using .22 MAC
  - US specific
  - PHY/MAC dependent
- 802.19 co-existence
- IETF < -- > IEEE liaisons to get input from relevant IEEE 802 groups

# Charter proposal

- Governments around the world continue to search for new pieces of radio spectrum which can be used by the expanding wireless communications industry to provide more services in the usable spectrum. The concept of allowing secondary transmissions (licensed or unlicensed) in frequencies allocated to a primary user is a technique to "unlock" existing spectrum for new use. An obvious requirement is that these secondary transmissions do not interfere with the primary use of the spectrum. Often, in a given physical location, the primary user(s) may not be using the entire band allocated to them. The available spectrum for a secondary use would then depend on the location of the secondary user. The primary user may have a schedule when it uses the spectrum, which may be available for secondary use outside that schedule. The fundamental issue is how to determine for a specific location and specific time, if any of the primary spectrum is available for secondary use. One simple mechanism is to use a geospatial database that records protected contours for primary users, and require the secondary users to check the database prior to selecting what part of the spectrum they use. Such databases could be available on the Internet for query by users.
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- In a typical implementation of geolocation and database to access TV white space, a radio is configured with, or has the capability to determine its location in latitude and longitude. At power-on, before the device can transmit or use any of the spectrum set aside for secondary use, the device must identify the relevant database to query, contact the database, provide its geolocation and receive in return a list of unoccupied or "white space" spectrum (for example, in a TV White space implementation, the list of available channels at that location). The device can then select one of the channels from the list and begin to transmit and receive on the selected channel. The device must query the database subsequently on a periodic basis for a list of unoccupied channels based on certain conditions, e.g. a fixed amount of time has passed or the device has changed location beyond a specified threshold.

# Charter proposal – cont'd

The databases are expected to be reachable via the Internet and the devices querying these databases are expected to have some form of Internet connectivity, directly or indirectly. The databases may be country specific since the available spectrum and regulations may vary, but the fundamental operation of the protocol should be country independent, thus extensibility of data structures will be required. The solution will not be tied to any specific spectrum, country, or phy/mac/air interface but may incorporate relevant aspects of these as needed for proper operation.

**The proposed working group will :**

- standardize a mechanism for querying the database, which includes a location sensitive database discovery mechanism and security for the protocols and application services involved.**
- Standardize the data model to be carried by the query protocol.**

Since the location of a user device is involved, privacy implications arise, and the protocol will have to have robust security mechanisms.

Existing IETF location data structures and privacy mechanisms may be considered for use. The WG will also investigate the need for other mechanisms and related protocols to the White Space DB access.

The Working Group will set up and maintain appropriate contact and liaison with other relevant standards bodies and groups, including IEEE 802.11af and IEEE 802.22 to begin with. The working group may also consider input from regulatory entities that are involved in the specification of the rules for secondary use of spectrum in specific bands.

# Proposed Work & Milestones

- Sep 2011: Submit 'Requirements and Framework' to the IESG for publication as Informational
- Apr 2012: Submit 'Protocol for Querying a Whitespace Database' to the IESG for publication as Proposed Standard
- Apr 2012: Submit 'Data Model for Whitespace Database query protocol' to the IESG for publication as Proposed Standard



# Questions

1. Is there interest in taking up the work to specify the messaging interface between devices and databases?
2. Is the IETF the right place to do this?
3. How many of you would be willing to work on various I-Ds and helping with reviews?
4. Should a WG be formed?

# Question 1

- Is there interest in taking up the work to specify the messaging interface between devices and databases?

Yes:

# Question 2

- 2. Is the IETF the right place to do this?

Yes:

No:

# Question 3

- 3a. How many of you would be willing to work on various I-Ds?

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- 3b. How many of you would be willing to help with reviews?

#

# Question 4

- Should a WG be formed?

Yes:

No: