

Communications between a master WSD and the Ofcom list server

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Requirements

Master White Space Devices (WSDs) that intend to operate in the United Kingdom must download the list of qualified White Space Databases (WSDBs) before making radio transmissions in the UHF band. This requirement applies to devices operating under the licence exemption framework and devices operating under a licence. After download of the list, the master WSD shall contact one of the WSDBs in the list in order to obtain the operational parameters for the radio transmissions. A master WSD operating under licence exemption may obtain parameters from any of the WSDBs in the list. A master WSD operating under a licence can only obtain parameters from a WSDB that is qualified to support Manually Configured WSDs (MCWSD), as indicated in the list.

ETSI EN 301 598¹ contains detailed requirements for WSDs. The requirements related to the list are:

- At start up and before initiating any transmissions in the UHF band the master WSD shall obtain the list of qualified WSDB for the relevant regulatory domain. The master WSD shall not transmit if it cannot obtain the list.
- The master WSD shall obtain the list again no later than N minutes. The value N will be specified in the list.
- If the list is not accessible after the time specified by N has expired, the WSD shall:
 - continue to use the list that it already holds; and
 - try to get list again at least as frequently as once every two hours thereafter but not more frequently than once per hour until such time as when the list can be accessed

Data exchange

- 1) The list will be available in two formats, XML and JSON, at the following URLs:
<https://TVWS-Databases.ofcom.org.uk/weblist.xml>
<https://TVWS-Databases.ofcom.org.uk/weblist.json>
- 2) The master must issue an HTTPS GET request with an additional alphanumeric field which shall be its unique device identifier, for example:
<https://TVWS-Databases.ofcom.org.uk/weblist.xml?UniqueID=00237DBB1B5F>
- 3) The server will respond with the xml or json file containing the list.

List contents

The list will contain the following:

- Last update: date and time when the file was last modified
- Refresh rate: Period in minutes after which the device must obtain the list again
- One or more instances of the following information:
 - URL: web address for the WSDB server

¹ http://www.etsi.org/deliver/etsi_en/301500_301599/301598/01.01.01_60/en_301598v010101p.pdf

- Provider name: Name of the company providing the database server
- WSDB ID: unique WSDB provider number
- Support for manually configured devices: True/false flag indicating whether the WSDB provider is qualified to serve operational parameters to manually configured WSDs.

XML schema

The schema below can be used to validate the XML file:

```
----- wsdblist.xsd starts -----
<xs:schema attributeFormDefault="unqualified" elementFormDefault="qualified"
xmlns:xs="http://www.w3.org/2001/XMLSchema">
  <xs:element name="ws_databases">
    <xs:complexType>
      <xs:sequence>
        <xs:element type="xs:dateTime" name="last_update"/>
        <xs:element type="xs:int" name="refresh_rate"/>
        <xs:element name="db" maxOccurs="unbounded" minOccurs="0">
          <xs:complexType>
            <xs:sequence>
              <xs:element type="xs:string" name="url"/>
              <xs:element type="xs:string" name="db_provider_name"/>
              <xs:element type="xs:int" name="ws_db_id"/>
              <xs:element type="xs:boolean" name="MCWSD_support"/>
            </xs:sequence>
          </xs:complexType>
        </xs:element>
      </xs:sequence>
    </xs:complexType>
  </xs:element>
</xs:schema>
----- WSDBList.xsd ends -----
```

Sample files

The following is an example of the XML file

```
----- weblist.xml starts -----
<?xml version="1.0" encoding="UTF-8"?>
<ws_databases xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:noNamespaceSchemaLocation="https://TVWS-Databases.ofcom.org.uk/wsdblist.xsd">
  <last_update>2016-01-01T12:00:00</last_update>
  <refresh_rate>1440</refresh_rate>
  <db>
    <url>https://WSdatabase-provider1.com</url>
    <db_provider_name>Database provider 1</db_provider_name>
    <ws_db_id>1</ws_db_id>
    <MCWSD_support>false</MCWSD_support>
  </db>
  <db>
    <url>https://WSdatabase-provider2.com</url>
```

```
<db_provider_name>Database provider 2</db_provider_name>
<ws_db_id>2</ws_db_id>
<MCWSD_support>false</MCWSD_support>
</db>
<db>
<url>https://WSdatabase-provider3.com</url>
<db_provider_name>Database provider 3</db_provider_name>
<ws_db_id>3</ws_db_id>
<MCWSD_support>true</MCWSD_support>
</db>
</ws_databases>
```

----- weblist.xml ends -----

The following is the JSON version of the same list:

----- weblist.json starts -----

```
{
  "ws_databases": {
    "last_update": "2016-01-01T12:00:00",
    "refresh_rate": "1440",
    "db": [
      {
        "url": "https://WSdatabase-provider1.com",
        "db_provider_name": "Database provider 1",
        "ws_db_id": "1",
        "MCWSD_support":false
      },
      {
        "url": "https://WSdatabase-provider2.com",
        "db_provider_name": "Database provider 2",
        "ws_db_id": "2",
        "MCWSD_support":false
      },
      {
        "url": "https://WSdatabase-provider3.com",
        "db_provider_name": "Database provider 3",
        "ws_db_id": "3",
        "MCWSD_support":true
      }
    ]
  }
}
```

----- weblist.json ends -----

Additional information

Additional information is available at <https://twws-databases.ofcom.org.uk> or by email at TVWSManager@ofcom.org.uk