ITU-R Documents Database Search Facility and its Future Development

Junko Koizumi
Engineer
Study Groups Department
Radiocommunications Bureau
ITU

This article explains the current development status and future plans for the ITU-R Documents Database Search Facility that has been under development since 2012 at the ITU Radiocommunications Bureau (BR).

1. Background

The development of the ITU-R Documents Database Search Facility was initially proposed by the Russian Federation at the ITU-R Study Group 1 (SG1) Working Party (WP) 1B meeting in June 2012. They proposed that the ITU Radiocommunication Bureau (BR) develop a database that makes ITU-R Recommendations searchable by the frequency bands specified in Article 5 of the Radio Regulations (RR). The objective is to raise awareness of ITU activities and to facilitate ITU members' work on ITU-R Recommendations.

The Russian Federation proposal was discussed by ITU-R SG1, and many countries agreed that it would be good to study the proposal and have it considered by the Radiocommunication Advisory Group (RAG). Thus, the ITU-R SG1 Chairman submitted a document regarding this proposal to the 19th RAG Meeting in June of the same year.

During the RAG Meeting, it was pointed out

1) the classification of ITU-R Recommendations should not only be by frequency range but also by radio service and, if available, application;

2) the classification of ITU-R Recommendations should not be by the frequency bands specified in Article 5 of RR but on the actual frequency ranges covered by the Recommendation;

3) it is not always clear from the title and scope of ITU-R Recommendations to which frequency band a Recommendation applies. Thus, to help members identify ITU-R Recommendations by frequency band, it was recommended to develop a database that would enable searching for a recommendation applicable to a given frequency band, preferably in combination with information about the radio service and the application covered by the recommendation.

The RAG invited:

1) the Director to develop a database, within existing budgetary limitations, and incorporate information about existing ITU-R Recommendations for which frequency bands are already indicated in the title and/or scope;

2) the responsible Study Group to consider and provide the relevant information on ITU-R Recommendations for which the frequency bands / radio services / applications are not specified in the title or scope;

3) Study Groups to identify in new or revised ITU-R Recommendations, as far as possible, the frequency range for which the ITU-R Recommendation is applicable.

The Director and the ITU-R Study Groups were invited to inform RAG in 2013 on progress with respect to these activities.

In the same year in August, I joined the ITU Radiocommunications Bureau and was assigned to work on the development of the ITU-R Documents Database Search Facility. Also, thanks to a voluntary contribution from the Japanese government (Ministry of Internal Affairs and Communications) in April 2014, development of the database was accelerated and its scope was expanded to also include ITU-R Reports, ITU-R Questions, ITU-R Resolutions, and ITU Handbooks.

Substantial support from Dr. Akira Hashimoto of NTT Docomo and Mr. Masaharu Araki of Docomo Technology was also received in the conceptual and preliminary design of the database and in the extraction of data.

2. Consideration of ITU-R documents search database facility at ITU meeting

Progress in developing the database is being reported at the RAG Meeting every year. Also, progress on dissemination of the database is reported to ITU-D members at the ITU-D/ITU-R Joint Rapporteur's Group Meeting on Resolution 9.

A demonstration of the functions for searching by Recommendation series, Recommendation number, frequency, and radio services for the M Series recommendations was conducted at the 20th RAG Meeting in 2013. In addition to these search criteria, a demonstration using text search, category, and responsible SG/WP for the M, F, and S Series Recommendations was conducted at the 21st RAG Meeting in 2014. And by 2015, search of all ITU-R Recommendations became available as a demonstration version for all the planned search criteria. In October 2015, search functions for the ITU-R Recommendations became available as an operational version.

By October 2015, development of the database for ITU-R Questions had been completed and the database became operational. Presently, a demonstration version is being used for searching ITU-R Reports, and preparations are underway on creating databases for ITU-R Resolutions and ITU Handbooks.
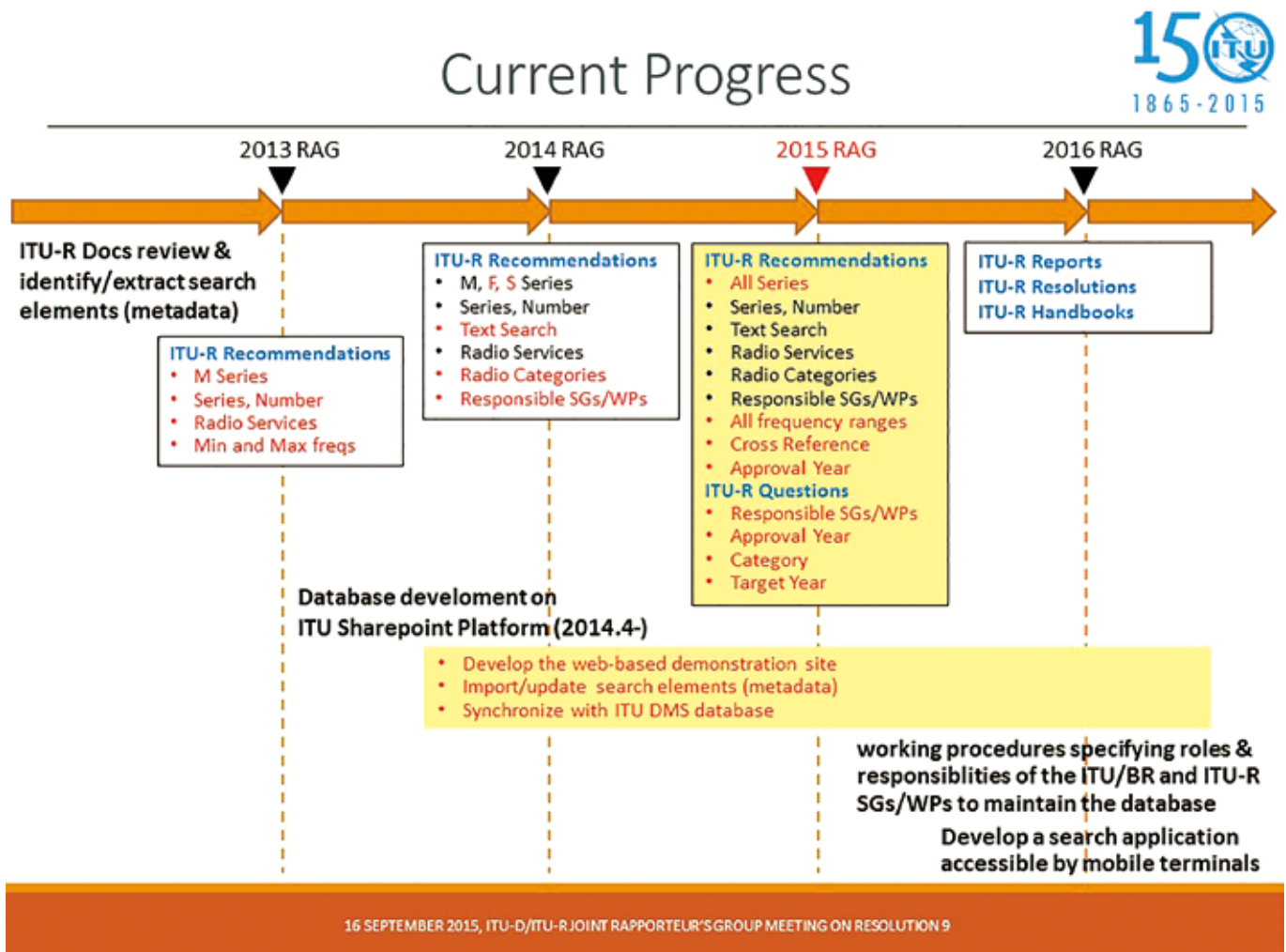
3. Target documents for current search database

The ITU-R Documents Database Search Facility currently covers the ITU-R texts defined in ITU-R Resolution 1, except ITU-R Decisions and ITU-R Opinions. That is, it currently covers ITU-R Resolutions, ITU-R Questions, ITU-R Recommendations, ITU-R Reports, and ITU Handbooks. The WRC Resolutions and WRC Recommendations listed in the Radio Regulations are not included within the scope of this project.

4. Functions of ITU-R Documents Database Search Facility

In the next Chapter, the search criteria, search database, page usage, etc. for the current ITU-R Documents Database Search Facility are explained for each of the target documents.

The ITU-R Documents Database Search Facility (https://extranet.itu.int/brdocsearch) can be accessed using an ITU TIES account or using a guest account which can be obtained at https://www.itu.int/net/iwm/public/frmUserRegistration.aspx. The site can also be accessed through links in the 《 ITU-R Documents Search Tool 》 under "Documents" on the ITU-R RA, RAG, SG, WP, and Coordination Committee for Vocabulary (CCV) websites.

■ Figure 2: Homepage of ITU-R Documents Database Search Facility (as of March 2016)
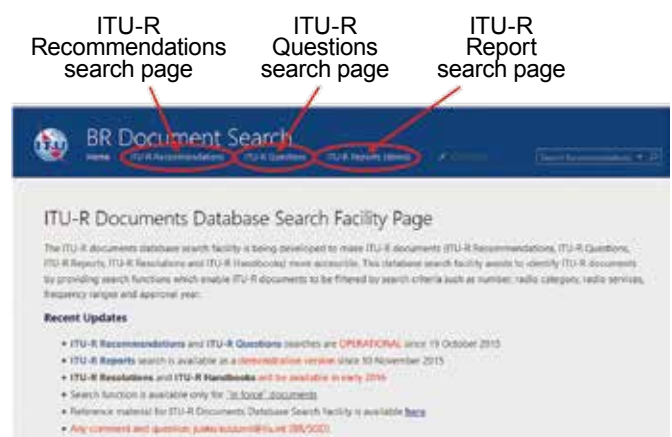
5. ITU-R Recommendations

(1) Search criteria

ITU-R Recommendations can be searched using Series, Radio category, Radio services, Cross-references with RR, Responsible SGs/WPs, Approval year, and Frequency range.

Radio category is a new classification criterion introduced for this database. Classifying the recommendations into 1) Technical/operational characteristics or parameters, 2) Sharing/compatibility issues, 3) Frequency arrangements, 4) Error performance/availability objectives, 5) High Frequency (HF) systems, 6) Antenna reference patterns, 7) Vocabulary, and 8) International Mobile Telecommunications (IMT) enables easily narrowing down the search results. There are Recommendations that correspond to more than one category, while others do not apply to any of the categories (N/A).

Under Cross-reference, Recommendations are classified into "IBR" (ITU-R Recommendations incorporated by reference in the RR, refer to WRC Resolution 27), "Ref." (referred to in the RR but not IBR), and "N/A" (not referred to in the RR). Also, individual Recommendation pages include the particular section where it is referred to in the RR (refer to Figure 5).

(2) Use of search site

The ITU-R Recommendations search page (Figure 3) can be accessed through the "ITU-R Recommendations" link shown in Figure 2, and search can be carried out in two ways (Search function 1 and Search function 2 in Figure 3).

Search function 1 can be used for a simple search using a single criterion. For example, selecting "IMT" under Radio category will show all Recommendations related to IMT.

Search function 1 is useful for narrowing down the results but does not support search using more than one criterion. Thus, if the target is IMT-related Recommendations approved in 2013, Search function 2 must be used.

Search function 2 supports multiple search criteria: Series, Radio Category, Services, Responsible WP, Cross-reference, and Approval year. All recommendations corresponding to the specified search criteria are displayed upon clicking the "Apply" button. Search function 2 thus enables a more accurate search through the use of multiple criteria.

ITU-R Recommendations can also be searched for using frequency range by accessing the link to the frequency search page, which is shown in Figure 3. This is done by inputting the target frequency range (minimum and maximum) in the Frequency range search box (Figure 4) and then clicking "Refine" to narrow down the Recommendations within the specified range. A full-text search of ITU-R Recommendations can also be performed on this page.

Once the target ITU-R Recommendation is found, the individual Recommendation page can be viewed by clicking the document icon on the left of the Recommendation number, as shown in Figure 5. This enables access to the ITU-R Recommendation document file.

■ **Figure 3: ITU-R Recommendations search page (https://extranet.itu.int/brdocsearch/R-REC/) (as of March 2016)**
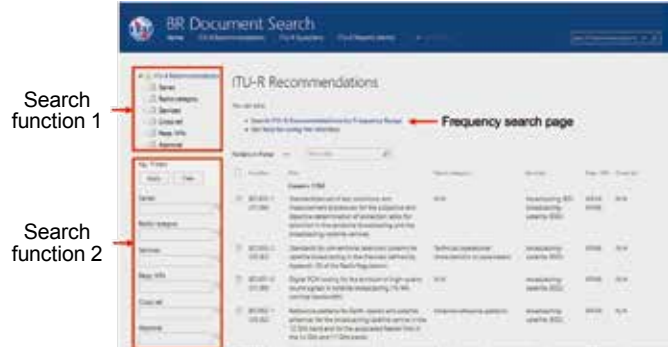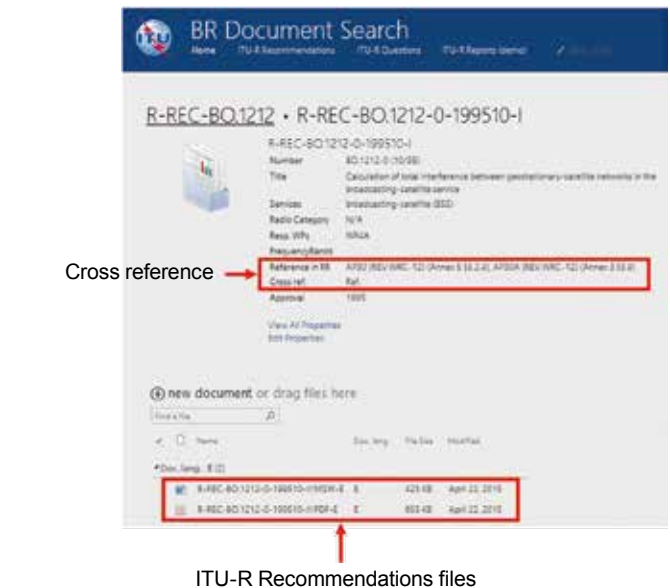

■ **Figure 4: ITU-R Recommendations frequency search page (as of March 2016)**

■ **Figure 5: Individual recommendation page (as of March 2016)**
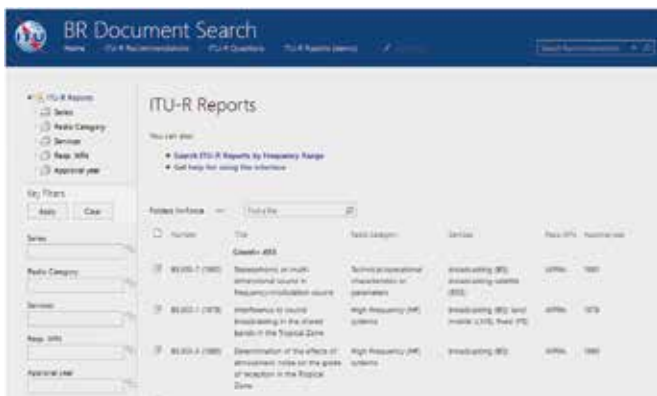
6. ITU-R Questions

(1) Search criteria

ITU-R Questions can be searched for using Study Group, Responsible WP, Approval year, Target year, and Category. The Target year and Category are extracted from the contents of the Questions documents. The Category for the ITU-R Questions differs from the Radio category of ITU-R Recommendations. It refers to the priority or urgency level of the Question as defined in ITU-R Recommendation 5.

(2) Use of search site

The ITU-R Questions search page (Figure 6) can be accessed from the "ITU-R Questions" link, as shown in Figure 2. Although the ITU-R Questions search page does not have a frequency search function, search is basically the same as with ITU-R Recommendations.
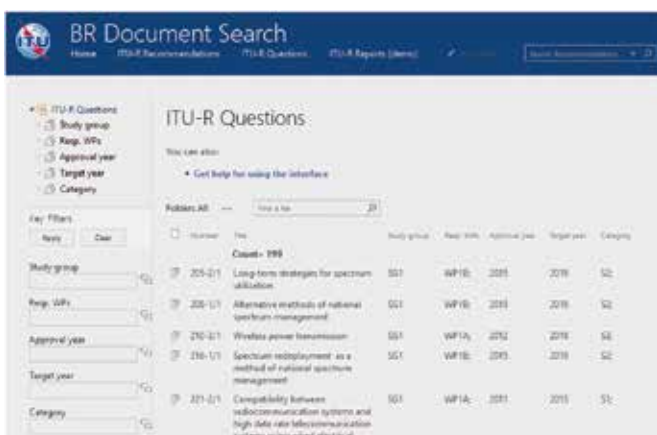
■ **Figure 6: ITU-R Questions search page**
(https://extranet.itu.int/brdocsearch/R-QUE/)
(as of March 2016)

7. ITU-R Reports

The search criteria for ITU-R Reports are exactly the same as for ITU-R Recommendations except for the absence of the Cross-reference criterion. Frequency range search is performed similarly as for ITU-R Recommendations. The ITU-R Reports search page (Figure 7) can be accessed from the "ITU-R Reports" link, as shown in Figure 2.

■ **Figure 7: ITU-R Reports search page**
(https://extranet.itu.int/brdocsearch/R-REP/)
(as of March 2016)

8. ITU-R Resolutions, ITU Handbooks

Search databases for ITU-R Resolutions and ITU Handbooks are still under development and are slated to become operational by this year's RAG Meeting. These search databases will also be accessible from the homepage of the ITU-R Documents Database Search Facility once they are completed as will be the ITU-R Recommendations, ITU-R Questions, and ITU-R Reports search databases.

9. Future plans

In addition to the ongoing development of the databases for ITU-R Resolutions and ITU Handbooks mentioned above, future work includes preparing working procedures for the ITU-R Documents Database Search Facility and developing mobile applications for its use.

(1) Preparation of working procedures for ITU-R Documents Database Search Facility

Since continuous updating of data is crucial to the operation of this search database, a system for handling data updates made during revisions and creation of new documents must be established. We therefore plan to prepare working procedures for the ITU-R Documents Database Search Facility.

(2) Mobile applications

Given the widespread use of iPads and other tablet devices, we also plan to develop applications compatible with mobile OS and mobile devices. We are currently investigating functions to be implemented on mobile platforms.

The search database was created on the Microsoft Sharepoint platform. Going forward, we plan to further improve its convenience through linkage and shared use with other standard databases.

Cover Art

Tousei odoriko zoroe "Sagi musume" The Heron Maiden from the series An Array of Dancing Girls of the Present Day

Kitagawa Utamaro (1753-1806)