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1 General/Introduction

The following document describes important updates in PROGIRA® plan version 7.0. In the document changes, new features, enhancements and bug fixes implemented within version 7.0 are presented. If you should need further information regarding any of the modifications, please contact support@progira.com.

PROGIRA® plan version 7.0 is a major upgrade with many new features and improvements. LTE Broadcast, also known as Further evolved Multimedia Broadcast Multicast Service (FeMBMS), 3GPP Release 1.4 and proposals for Release 16, is supported in this version. This is also the first version of PROGIRA® plan that can be installed on ArcGIS Pro, however as a Beta version for testing purposes.

A selection of other new features and updates in version 7.0:

- Support for latest ArcGIS version (10.7)
- Support for latest ArcGIS Pro version (2.3). Beta version of PROGIRA® plan!
- Major upgrade of the US FCC coordination procedure
- All field strength propagation models run multithreaded resulting in faster calculations

Some benefits of PROGIRA® plan in ArcGIS Pro:

- It features a modern ribbon-based user interface. The smart contextual tab interface only displays tools relevant to the object that users clicked on. The screen shot below illustrates a field strength layer selected in the Contents window. The functions you can apply on the selected field strength layer is highlighted subsequently.
• Support for multiple maps and layouts. Views are dockable and can be synched. In the picture below a 3D view of a field strength prediction has been created. This 3D view is synched with the 2D view.
2 Base Module

2.1 General

NEW: Support for ArcGIS Desktop 10.7

NEW: Support for ArcGIS Pro 2.3. Known limitations:

- Area- and population coverage function

2.2 Data Overview

2.2.1 General

NEW: In the transmitter table, columns for transmitter (Tx) Power, Combiner loss, Feeder loss and Antenna gain are added.

NEW: US TV repack information may now be displayed in the FCC Data Overview tab. The Repack phase, Phase end and Repack state (Pre-pack or Post-pack) is presented. This information may now be used in the Frequency planning module, for example in the FCC wizard, to limit analysis, to only Post-pack stations. The repack information is taken from the FCC web page.
Note: When downloading the FCC data, the file containing the repack information needs to be included in the download. It is recommended that the file with the repack information is stored in the same directory as the other LMS data files.

**CHANGED:** DTS (Distributed Transmission Systems, SFN) entries in the FCC LMS database are now presented in a hierarchical fashion. Only the header file for the DTS facility is now presented. When the header is expanded, the other entries for this particular DTS facility is shown. These other entries are the Reference site, Baseline, and the actual DTS transmitters (numbered).
2.3 Custom Data import

**CHANGED:** When importing transmitters using format PROGIRA® plan, the system parameters are set according to the default system template in PROGIRA® plan Settings, see chapter 2.8.

2.4 Tx

**NEW:** FeMBMS transmitters can be created.

2.5 Antenna diagram

**NEW:** Import multiple vertical antenna patterns. This function is accessible by right clicking on the vertical antenna pattern diagram in the transmitter user interface.
2.6 Gapfiller

**FIXED:** The graph did not present the correct D/U values (Desired/Undesired). Polarization discrimination was taken into account twice.
2.7 Allotments/SFN

**NEW:** It is now possible to create a common allotment which is the intersection of all input allotments. The function aims to simplify the planning of shared site SFN. It is then important to find antenna restrictions that work for all the channels in question.

![Create Combined Allotment (Intersection)](image)

**NEW:** Capability to create combined contours is introduced. This function is mainly designed for the US market. It allows the merge (Union) between the Distance circle, at 103 km or largest station in market, as specified in FCC 73.626 c, and the coverage contour (i.e. 41 dBuV/m contour). This function is available after making a coverage contour.

It is possible to create both a shapefile and an allotment. The allotment may later be used to calculate possible antenna reductions towards the allotment boundary points, or as a mask to calculate population inside the allotment/shapefile. Note that it is possible to simultaneously add two or more stations in one calculation. In such cases several allotments/combined contour will be created.
2.8  **User Settings**

**NEW:** Templates for system parameters can be made. You can define up to 10 different sets of system parameters and name them according to your standard.

In user interfaces where system parameters are used, you can easily select among your saved templates. The ISDB-T summation setup user interface is shown as an example.
NEW: Setting “Effective antenna height calculation path step” is introduced. The default setting is the resolution of the elevation database in your configuration with the highest priority.

NEW: Labels in a Channel Map layer can be changed. It is also possible to define the types of information to be presented when MapTips is activated.
**NEW:** When importing data from ITU database (BR IFIC) or ITU notice file you might want to control the naming of the created transmitters and/or allotments. In PROGIRA® plan Settings under ITU – Import: you can specify how to build the name by combining different data objects.

**NEW:** In FCC Analysis, it is possible to define which type of transmitters that should be taken into account: Post-pack, Pre-pack or both. When for example performing a Search for Interferers, the FCC repack status may be selected.
NEW: When checking “Use FCC frequency planning rules” Emed (Minimum Field strength) is set according to FCC OET 69 when conducting a contour calculation with an ATSC 3.0 transmitter. Earlier this was only applied to ATSC 1 transmitters.

NEW: Default settings for the “Network verification – Fs prediction analysis” function. There is also a method to transfer additional input data columns to the result. This is performed by checking the “Read custom columns” box (see screenshot below) and define properties of the columns in the output format.
NEW: Update of C/N values for FeMBMS.

2.9 Fs Setup

NEW: Propagation model ITU-R P.1812-4 added.

NEW: Propagation model ITU-R P.526-14 added.

CHANGED: CRC-Predict can now be used at 0.1 and 0.01% of time.

CHANGED: All field strength propagation models are now multithreaded.
2.10 Fs Point Calculation

**NEW:** Anatel 1546 propagation model can now be used for point-to-point calculations.
NEW: FCC model can now be used for point-to-point calculations.

2.11 Population and area coverage
CHANGED: Default threshold values is set to 0 dB for usable FS margin rasters (FM summation result).

2.12 Export to TV-Study (US)
NEW: The export to TV-Study function now includes site numbering for US DTS (Distributed Transmission Systems, SFNs).
3 Network planning module

3.1 FeMBMS Sum

NEW: FeMBMS SFN summations.

3.2 System independent FS Sum

CHANGED: A threshold can now be set on each input raster. This threshold value is applied when executing the “Per-raster threshold” group functions. The “Single threshold” group functions do not consider individual threshold values.
3.3  Network sum
CHANGED: A threshold can now be set on each input raster.

3.4  Analyze location
CHANGED: The impulse response has been coloured to facilitate the interpretation of the result.
4 RL module

**NEW:** Path clearance distance in [m] and clutter heights (shown along the path profile), has been added.

**CHANGED:** Import microwave links from Anatel format (Brazil). When no matching pair is found in the database, it creates a second site/transmitter at a distance given by the database. In previous versions the second site was created at a distance set by the user.