XtrkCadReader - revision 1.2

1. Introduction

The XtrkCadReader utility converts layout schemes produced by the Open Source program **XtrkCAD** (freely available from http://www.xtrkcad.org) to JMRI Layout Editor format (JMRI version 2.0 or higher).

2. License

XtrkCadReader is part of the **JMRI** project and is available under the GNU General Public License. For additional information about licensing terms, kindly refer to http://jmri.sourceforge.net/COPYING

3. Data conversion

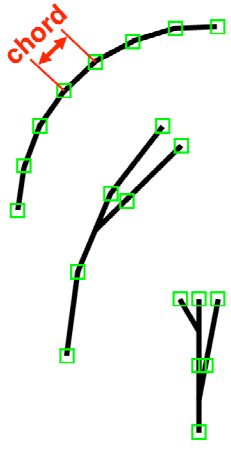
The program automatically scales the layout in order to fit it into the user-defined rectangle (default 800x600 pixels), maintaining the original X/Y proportions, and converts the following track elements supported by Layout Editor:

- Straight track segments;
- Normal turnouts;
- WYE turnouts;
- Crossings;
- Bumpers; and
- Turntables.

4. Rendering of unsupported track elements

Other track elements are dealt with as follows:

- Curved tracks
  - are rendered by polylines with a user defined maximum chord (default 20 pixels, minimum 3 pixels). Each curved track is rendered by at least two chords.
- Curved turnouts
  - are replaced by shorter normal turnouts, linked to the three original end points by means of straight segments.
- Three-way turnouts
  - are replaced by two normal turnouts.



Single and double slip switches
are replaced by normal crossings.
Joints (easement transition curves created by XtrkCAD)
are replaced by straight track segments.
Any other type of track is skipped.

5. Automatic adjustments

While converting the file, XtrkCadReader performs the following adjustments:

- Merge of unconnected end points of track elements, if the distance between them is within a user defined tolerance (default 2 pixels).
- Insertion of null-length tracks between turnouts or crossings connected together (connection not allowed in Layout Editor).

6. Hidden tracks

Track segments that are marked as hidden in the original XtrkCAD file are converted to... hidden tracks, unless the following options are specified:

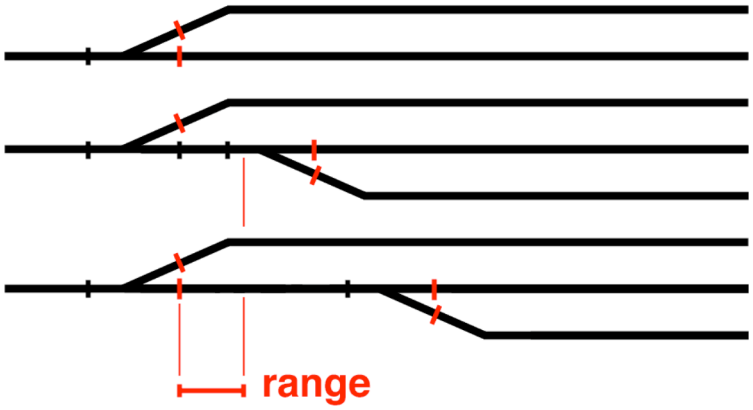
-hi Instructs the program to ignore hidden track indicators contained in the XtrkCAD file (i.e. all tracks are made not-hidden).

-hd Instructs the program to convert hidden tracks into dashed lines.

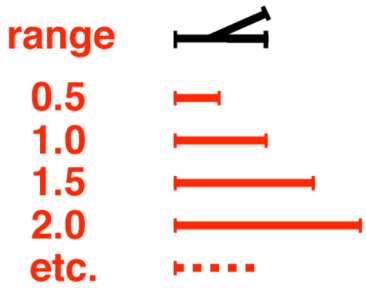
Please note that the above options only apply to track segments, since turnouts and crossings cannot be hidden in Layout Editor.

7. Blocks

Optionally, the program also breaks the layout into blocks, placing their boundaries in correspondence of block-gaps defined in XtrkCAD (option **-bg**) or of turnouts (option **-bt**) or both. When the turnouts option is chosen, the program places block boundaries on the frog side of turnouts, unless the point of another turnout follows immediately or within a user defined range.



The range, in order to keep it scale independent, is expressed as a multiple of turnout's length.



Crossings are not assigned to any block, unless the **-bx** option is specified. In which case, the two crossing tracks are considered, for the purpose of block assignment, as if they were two independent track segments.

The default block numbers generated by the program are distributed almost randomly across the layout (depending on the order of tracks in the input file), but a specific name can be assigned to each block using the **-bn** option. To this purpose, the XtrkCAD description of one track element per block must be modified to include the text: **blocksystemname** *sssss* **blockusername** *uuuuu*. Only one track element per block needs to be modified (its position within the block is irrelevant). In order to modify the description in XtrkCAD, select "Describe option" (button marked with a question mark) and left-click on the desired track element (it cannot be a flexi-track segment). Block names can be inserted in **Manufacturer**, **Name** or **Part No.** fields.

8. Known limitations

Scale

is computed as a ratio between the desired output size and the **room-size** defined in XtrkCAD. A wrong room-size can thus result in an inappropriate scale.

Track width

All tracks are generated as **sidetracks**. Conversion to **main-track**, if required, must be performed in Layout Editor or by modifying the output xml file with the help of a text editing program.

Track color

If blocks are generated, their "track color" is **black** and their "occupied track color" is **red**.

Continuing routes

of all turnouts are set to **closed**.

Numbering

of track elements, anchors and blocks start from 1 (default). The start value can be however changed with the following options:

- -sa starting ID number for anchor points;
- -sb starting ID number for blocks;
- -se starting ID number for bumpers;
- -ss starting ID number for track segments;
- -st starting ID number for turnouts;
- -stt starting ID number for turntables;
- -sx starting ID number for crossings.

9. Instructions

In order to launch XtrkCadReader, open a **DOS command window** (if using Windows) or a **Terminal window** (if using Linux or Mac OS/X) and type in the following command:

java -jar *path1*.XtrkCadReader.jar *path2.inputfile* [*options*]

or

java -jar *path1*.XtrkCadReader.jar [*options*] *path2.inputfile*

Where:

path1 and *path2* depend upon the organization of the hard disk.
inputfile is the file with **xtc** extension produced by XtrkCAD.

Example (to be typed on a single line):

java -jar
"C:\Program Files\JMRI\XtrkCadReader1v1\XtrkCadReader.jar"
"C:\Program Files\XTrkCAD4\examples\spagw1.xtc"

Kindly note that, if a path contains spaces, it must be enclosed within double quotes (") as in the above example.

The output file is placed in the same directory of the input file and has the same name with extension **xml**.
Example:

"C:\Program Files\XTrkCAD4\examples\spagw1.xml"

The following options can be specified in any order:

-x	pixels	Width of the output frame (default 800 pixels)
-y	pixels	Height of the output frame (default 600 pixels)
-c	pixels	Maximum chord length for arcs rendering (default 20.0 pixels, minimum 3.0)
-t	pixels	Tolerance for automatic merging of unconnected end points (default 2.0 pixels)
-hi		Ignore XtrkCAD hidden tracks settings
-hd		Render hidden tracks as dashed lines
-sa	number	Starting ID number for anchor points (default 1)

-sb	number	Starting ID number for blocks (default 1)
-se	number	Starting ID number for bumpers (default 1)
-ss	number	Starting ID number for track segments (default 1)
-st	number	Starting ID number for turnouts (default 1)
-stt	number	Starting ID number for turntables (default 1)
-sx	number	Starting ID number for crossings (default 1)
-bg		Enable automatic definition of blocks, based on XtrkCAD block gaps.
-bt		Enable automatic definition of blocks, based on turnouts position.
-br	number	Maximum range for inclusion of turnouts in the same block - see documentation above (default 2.0)
-bx		Assign block numbers also to crossings.

10. Reading the XML file with JMRI

The XML file produced by XtrkCadReader can be read with **PanelPro™**, or **JmriDemo** programs (both included in JMRI version 2.0 or higher), by selecting the **Load panels** option in the **Panels** menu. The file is open in edit mode and can be modified by selecting and dragging the various track elements or their end points, as explained in the **Layout Editor** Web Page.

(see http://jmri.sourceforge.net/help/en/package/jmri/jmrit/display/LayoutEditor.shtml)

11. CAVEAT

This program is supplied "AS IS" and has been tested with a very limited number of layout schemes. The output generated by it can thus be "far from perfect" and may require some manual amendments