USING ANYRAIL FOR T-TRAK LAYOUT PLANNING

Ken Biholar; Vic McTee

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ttrak.wikidot.com/anyrail

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Using AnyRail for T-TRAK Layout Planning

Foreword

In 2009 I began the search for a program that would simplify T-TRAK layout design. The principle requirements were ease of use, affordability, and effectiveness. There were several options but each one that I tried seemed frustratingly difficult to learn - until I found *AnyRail*. Its only drawback was that it did not support modular designs in that one could not affix track to a movable object. However, with a bit of extra effort, track could be modeled on a moveable object as a line. And since the license restriction on the trial version is limited to 50 pieces of track per file, a license was not needed for T-TRAK layout creation since no track was being used.

Despite the limitation of not supporting modular railroading, I liked the program so much I not only purchased a license but I also introduced Mike (our chief layout designer at that time) to the software. Under normal circumstances that would not be considered noteworthy. What needs to be understood is that Mike is a self-described luddite who drew a technological line in the sand at some point in time after flip phones but well before smart phones. I was fairly certain I was on thin ice mentioning this software.

To my delight, Mike adopted the software quickly. This was in part due to the ease of use of the software but also how tedious other methods were in comparison. Not only did Mike use the software, he began pioneering with it. He didn't just use the same module blocks. He compiled a file containing all show ready modules of club members. He color coded the modules to the owner so it become an easy way to scan a layout plan for which modules needed to be at an event. He added tables, electronics, and displays to the library so they had their place in the layout plan. He used 62mm grid units to aid in placing modules.

It was during a recent review process of a document on our club's new wiring system that Ken suggested I write another document on how to use *AnyRail* for designing T-TRAK layouts. I countered with the offer that I would provide him an outline and assistance where needed, and he could write the document. He accepted the offer but stated he knew very little about *AnyRail*.

Friends, the document you are about to read was written by Ken from the outline I provided. Furthermore, he went on to improve aspects of the suggestions in my outline as well as developing and documenting an entirely new process based on my speculation how a feature of the software could be used in layout design. If nothing else, these facts are a testament to the ease of using *AnyRail* to design T-TRAK layouts. We sincerely hope you will find this document as easy to read as *AnyRail* is to use and that the combination of the two eradicate any T-TRAK layout design problems you may have.

Vic McTee

Introduction

This Primer will demonstrate how to use the basic features of the *AnyRail* software as an aid in T-TRAK train show layout planning. There are many more features available in the *AnyRail* software package that will not be discussed in this document as the *AnyRail* software is not limited to T-TRAK layout design.

AnyRail is a model railroading planning/design program, Copyright © 2004-2018 DRail Modelspoor Software, available for download from www.anyrail.com. Two options of the software are available for download: 1) a free "trial" version with no obligation, and 2) a licensed version. The "trial" version allows you to create layouts that contain 50 or less sections of track whereas the licensed version removes this limitation. Readers are encouraged to download and try the *AnyRail* software while following this Primer. If the reader wishes to develop more complex layouts, or design a module containing more than 50 sections of track, they are encouraged to consider purchasing the licensed version from the developer for a nominal cost.

This versatile program is an excellent resource for the model railroader. In addition to general drawing capabilities, it is also equipped with a number of different libraries – **TRACK** and **OBJECT** - containing information sorted by scale and manufacturer. In the **TRACK** Library, each piece of track is labeled under the manufacturer by its part number so selection is easy. **OBJECT** Libraries are divided into "Signal Libraries" by manufacturer, "General Scenery" and (in some cases) "Structures" by manufacturer. The structures available under the "Structures" function tend to be ones that would be placed as part of a layout or adjacent to tracks such as turntables, roundhouses, stations, etc.

The free "trial" version is the version used for the purpose of this Primer. The Primer will show how to create Modules as an Object, and Layouts with these Module Objects, that do not exceed the track limitations and therefore the "trial" version is perfectly suited to this T-TRAK application.

The version of *AnyRail* used in this Primer is Version 6.14.4 (Mar 28 2018).

The focus of this Primer is on T-TRAK-N, because that is what the North Texas T-TRAK Modular Railroad Club ("NTTT") uses. The principles for are the same for other scales, with key values (for other scales) found in **Appendix B**.

AnyRail Basics

Moving around

Opening the *AnyRail* program will generate the following screen (Figure 1). This view includes a Quick Access Toolbar across the top for use as shortcuts ("***New***", "***Open***", "***Save***", "***Undo***", "***Redo***", and "***Customize Quick Access Toolbar***") and a series of tabs detailing different functions available. Additional functions can be added to the Quick Access Toolbar using the "***Customize Quick Access Toolbar***" icon.

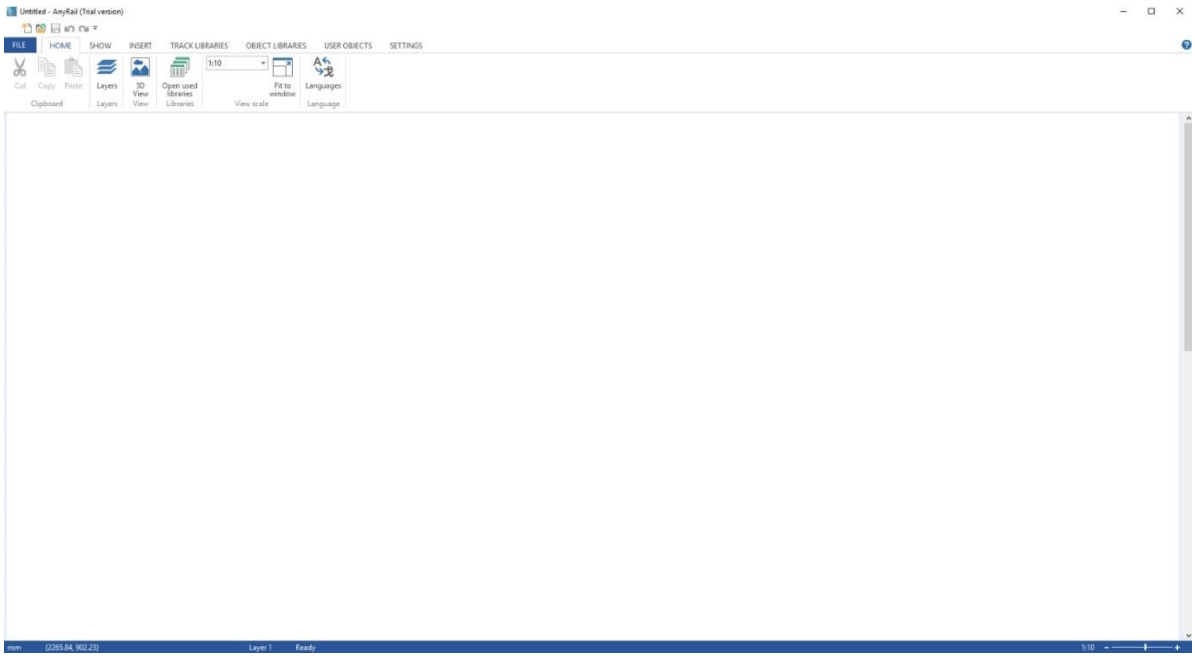


Figure 1 - AnyRail Work Area

The tabs include: ***FILE***, ***HOME***, ***SHOW***, ***INSERT***, ***TRACK LIBRARIES***, ***OBJECT LIBRARIES***, ***USER OBJECTS***, and ***SETTINGS***. The four tabs that we will use in this Primer are: 1) the ***HOME*** Tab (Figure 2*)*, 2) the ***INSERT*** Tab *(*Figure 3*)*, 3) the ***TRACK LIBRARIES*** Tab *(*Figure 4*),* and 4) the ***SETTINGS*** Tab *(*Figure 6*)*.

HOME Tab

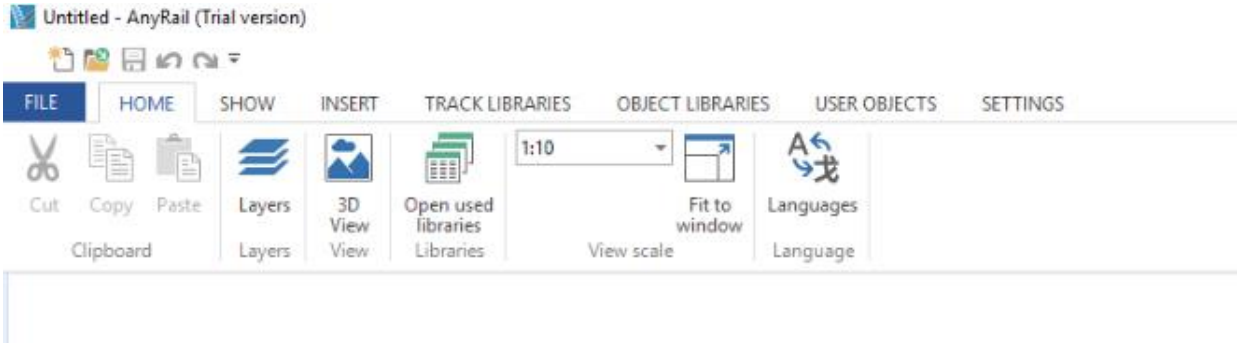


*Figure 2 - AnyRail **HOME** Tab Functions*

The functions of interest under the ***HOME*** Tab will be "Clipboard", and "View Scale".

The "Clipboard" function lets you *CUT*, *COPY*, and *PASTE* objects selected on the Work Area.

The "View scale" function lets you zoom in or out on the Work Area by changing the viewing ratio. The viewing scale is set to 1:10 in Figure 2. The viewing scale can be changed via the drop-down menu, to values between 5:1 and 1:300. Selecting "Fit to window" will quickly adjust the view so that the entire Work Area can be seen. The "View scale" can also be adjusted by holding down the <**CTRL**> key while using the mouse scroll wheel.

INSERT Tab

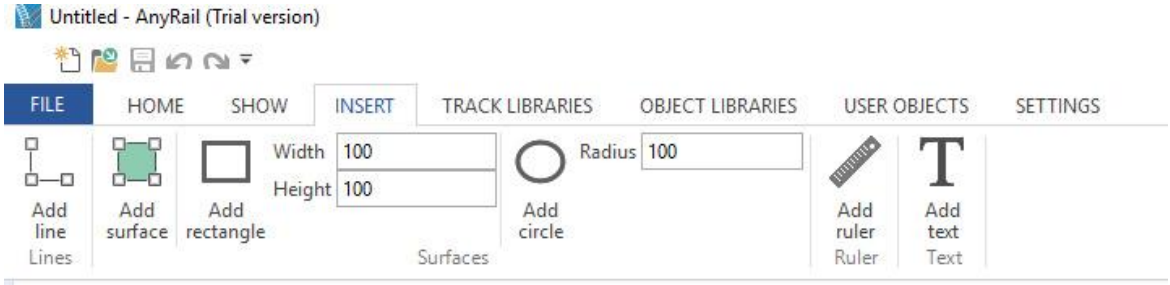


*Figure 3 - AnyRail **INSERT** Tab Functions*

The functions available under the ***INSERT*** Tab are "Lines", "Surfaces", "Ruler", and "Text". We will be using all of the functions available under the ***INSERT*** Tab.

TRACK LIBRARIES Tab

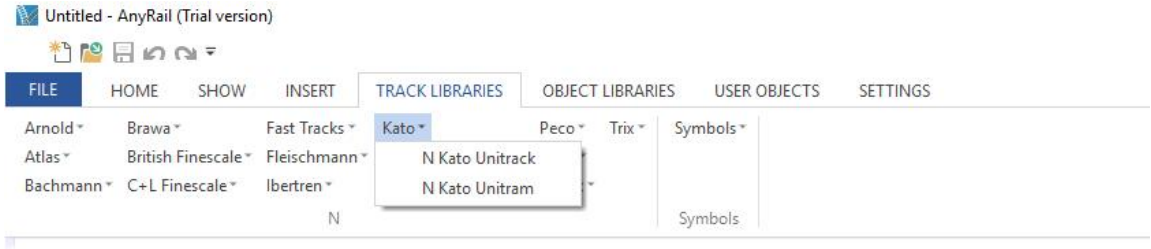


*Figure 4 - AnyRail **TRACK LIBRARIES** (N Scale) Tab Functions*

This Primer is focused on N scale, and therefore only the "N" scale function under the ***TRACK LIBRARIES*** Tab. However, it should be noted that the techniques in this document can easily be applied to T-TRAK layouts in other scales. Some of the values necessary for other scales can be found in **Appendix B**.

KATO Unitrack is specified as the track to be used for N-scale T-TRAK. The *AnyRail* software contains a complete listing of the *KATO Unitrack*, complete with part numbers, in the *KATO Unitrack* N-scale Track

Figure 5 - N Scale partial KATO Unitrack Listing

Library. A sample of a portion of the *KATO N-scale Unitrack* library is shown in Figure 5. The *AnyRail* program does include track libraries for other manufacturers and scales, in addition to N Scale, that are used in model railroading.

SETTINGS Tab

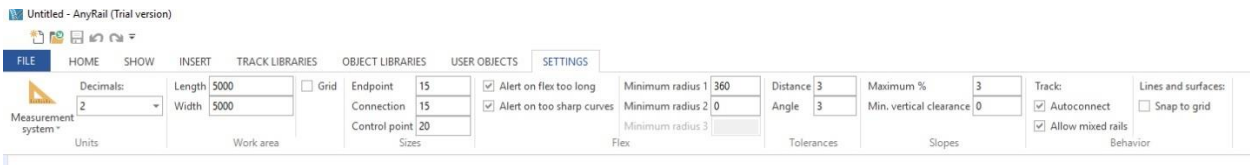


*Figure 6 - AnyRail **SETTINGS** Tab Functions*

Key functions of interest under the ***SETTINGS*** Tab include "Units", "Work Area", and "Behavior".

The "Measurements" dropdown menu allows for the selection of Metric decimal units, in cm and mm, English fractional units (in inches), and English decimal units (in inches). By default, all measurements in *AnyRail* are metric. If English units are used, *AnyRail* will round fractions to the nearest 1/64 of an inch. If one chooses to display decimal units, the number of decimal units displayed can also be adjusted using the dropdown menu. 0, 1, 2 or 3 decimal units can be displayed. The default for decimal units is "2".

The "Work Area" customizes the size of the work area. The default length and width are both shown as 5,000 in Figure 7. These values can also be adjusted to decrease the size of the work area available. Checking the "Grid" box will display a grid over the work area. When checked, a box will appear for setting the size of the grid (in this case, 33mm spacing) as well as a checkbox to place the grid in the background.

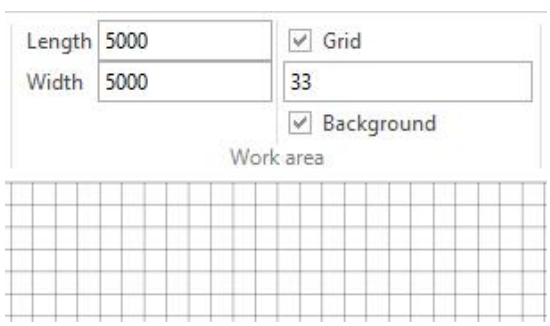


Figure 7 - Work Area Functions

Basic Object Functions

Selecting an object

Selecting an object occurs when your pointer moves over one of the edges of an object. **<left-click>** on the mouse, and the object will be selected. A colored-box will appear, along with a line and colored dot at the top *(see* Figure 8*)*.

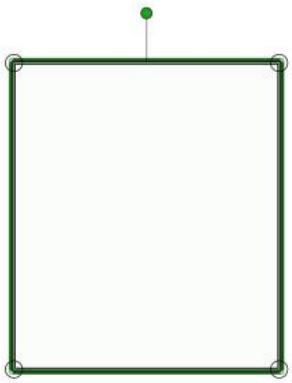


Figure 8 - Selected Object in AnyRail

Selecting multiple objects

To select multiple objects on the working area, **<left-click>** and hold the **<left>** mouse button down outside of the objects to be selected and drag the mouse across the objects. A blue box will appear and all objects within the blue box will be selected (objects will be highlit). If an object is included in the selection that was not intended to be selected, holding the <**CTRL**> and <**left-click**> on the object not intended to be selected.

Alternately, another method that may be used to select multiple objects is to hold down the <**CRTL**> while selecting individual objects (using <**left-click**>) with the mouse.

Moving an object

To move an object on the working area, select the object as described above and hold the **<left>** mouse button down while dragging the object to a new position on the working area.

An alternate method used to move an object is to use the <**ARROW**> keys on the keyboard. This is useful for small adjustments that are needed sometimes for alignment.

Rotate an object

To rotate an object accurately, select the object(s), <**left-click**>, and select the "**Rotate**" function from the **TOOLS: GROUP** Tab menu. A **ROTATE** window will appear with a slider and, more importantly, buttons for common rotation angles. Since virtually all of our rotations will be in increments of 90 degrees in this Primer, this would actually be the preferred method to use.

An alternate method available is to select the object as described above and move the mouse over the dot that appears at the top of the object. A counterclockwise arrow will appear around the dot. Hold the **<left>** mouse button down while moving the mouse to rotate the object on the working area. However, this method is less precise for the uses needed in this Primer and therefore not the recommended practice to follow when doing the tasks laid out in this document.

Zoom In, Zoom Out

Zooming in and out can be accomplished in three different ways.

Method 1: There is a "View Scale" setting under the **HOME** Tab. The dropdown menu lets you select various ratios, from 5:1 to 1:300. For example, the View Scale setting is 1:10 in Figure 2.

Method 2: Hold down the <**CTRL**> key while moving the scroll wheel on the mouse to adjust the "View Scale" setting quickly.

Method 3: Using the mouse, adjust the scale shown the slide bar in the lower right-hand corner of the work area. This method can be used to see the impact of the changed scale immediately on the work area.

Settings

Note that some of the topics in this section have been briefly introduced above when addressing the ***SETTINGS*** Tab previously.

Measurement System

The measurement method used in *AnyRail c*an be modified at any time under the ***SETTINGS*** Tab. For the purpose of this Primer, the measurement method can be set to "Metric Decimal Units (mm)" since *KATO Unitrack* is measured in millimeters. For the creation of inventory for a club/show, the measurement method can be changed to "English Decimal Units (inches)" to create rectangles of various sizes to represent tables in English units or to define venue space during layout planning.

Defining Work Area

The default setting for the work area, as shown in Figure 7 is 5000 mm in length and 5000 mm in width, since our measurement method is set to "Metric Decimal Units (mm)". These values may be adjusted under the ***SETTINGS*** Tab if you wish to work with a smaller (or larger) work area.

Grid

The default spacing for the Grid is shown as 33 mm in Figure 7. This corresponds to the alternate track spacing used in T-TRAK-N specifications. Where necessary, this grid spacing can be adjusted to aid in alignment of track and/or objects in the Work Area.

Control Point

When you add a line, circle or rectangle to the Work Area you will also notice that the line has a circle at each end (or intermediate point) [*see Figure 9*], and the circle or rectangle has a circle at their vertices. In the case of a circle, an imaginary box is drawn around it and it is this imaginary box that has the vertices. These vertices are known as "Control Points" and are used to adjust the position of that point on the object. This is useful for drawn lines in the instance where you need to align a line to the edge of a rectangle (for example). In the case of circles and rectangles, selecting one of their control points will result in a misshapen object. Should one of the vertices be accidently selected and moved, <**CTRL-Z**> will undo the last task. Changing the size of the Control Point can make them easier to select.

Snap to Grid

Checking the "Snap to Grid" box creates a secondary grid to be used by objects and will cause these objects to line up according to the spacing identified under the checkbox. The default value is "10". Once selected, Objects will snap in place such that their upper left-hand corner will "snap" to the grid. The Grid defined by the "Snap to Grid" function is separate from the Work Area Grid.

"Snap to Grid" is useful to align a number of objects along the same axis and will be used in greater detail in **Appendix A**.

Note that if the Work Area grid is set to 33 and the Snap to Grid is set to 10, the Objects will snap to the 10mm grid.

Insert User Objects

This section will discuss how to create a line, a circle and a rectangle in *AnyRail*. This Primer will use lines to represent track, rectangles to represent modules, and circles to provide information.

Add Line

Adding a user-defined line in *AnyRail* is very easy. The following section describes how to create a line, change the line to a dashed line, change line thickness or color. The various line styles are shown in Figure 9. As can be seen in this Figure, each line has a pair of Control Points – one at the starting point and one at the endpoint. In the case of the Multi-point line (B), there are three Control Points (in this example).

A) **POINT TO POINT LINE:** Go to the ***INSERT*** Tab and select "Add Line". The "Add Line" function will be highlighted. Select the starting point on the Work Area and **<left-click>** the mouse. Move the pointer to your end point and **<double left-click>**. The **<double left-click>** or pressing the "**ESC**" key will end the use of the "Add Line" function.

B) **MULTI-POINT LINES:** Should your line require an intermediate point, to change direction, repeat the process expressed above replacing the **<double left-click>** instruction with a **<left-click>** at all positions except the final end point. **<left-click>** and hold the mouse over a Control Point to move that point to a different location on the work area. This will adjust the geometry of the lines accordingly.

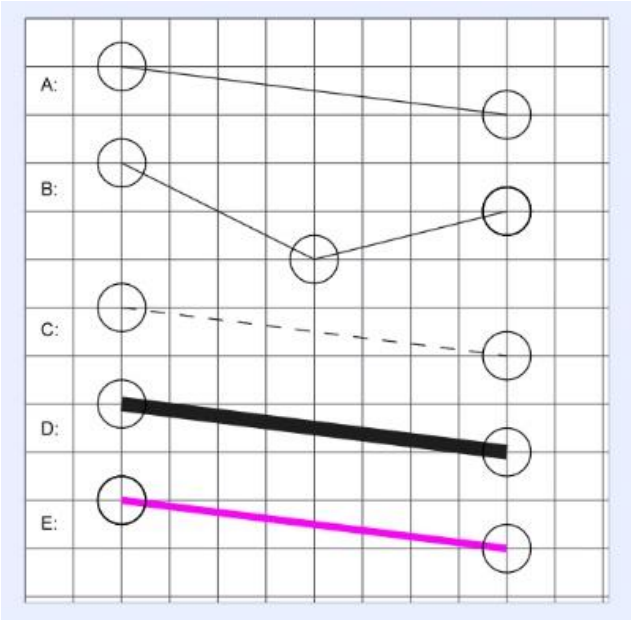


Figure 9 - Lines Drawn in AnyRail

NOTE: This is a good way to approximate curves, and this technique will be used during the creation of modules depicting corners, junctions and endcaps later in this Primer.

C) **DASHED LINE:** Should a dashed line be preferred, simply select the line so that the "***TOOLS: LINES***" Tab opens and select the "Dashed" checkbox. Once the box is checked, boxes for "Dash A" and "Dash B" will appear below the checkbox.

"Dash A" is the visible part of the line with a default of 10 mm. To make the dash longer change "10" beside "Dash A" to a higher value, to make it shorter change "10" to a lower value.

"Dash B" represents the space between the Dashes. To make the space wider change "10" beside "Dash B" to a higher value, to make it shorter change"10" to a lower value.

D) **CHANGE LINE WIDTH:** The default line width is 1 mm. To change the line width, **<left-click>** on the line to be changed. The "***TOOLS: LINES***" Tab will open that includes the following functions:

"General", "Lines", and "Objects". The line width can be changed by replacing the value of "1" with another value under the "Lines" function. In Figure 9-*D*, the value was changed to "10".

E) **CHANGE LINE COLOR:** The default line color is **black**. To change the line color, **<left-click>** on the line to be changed and the "***TOOLS: LINES***" Tab will open. **<left-click>** on the "Line color" dropdown menu and select the new color to be used. The default color was changed to "Magenta" in Figure 9-*E*.

Add Circle

Adding a circle to the Work Area is even easier than adding a line. The following section describes how to add a circle, change the color of the circle and change the color and/or width of the line of the circle. The circle will be placed on the Work Area with the center-point at the location of the mouse pointer when **<left click>** is selected.

ADD CIRCLE: Go to the ***INSERT*** Tab and select "Add circle". Move the mouse pointer to the center-point where the circle is to be placed and **<left-click>** with the mouse. The circle will appear on the Work Area. Note that the default radius is "100" mm. This value can be changed, higher or lower, to make a larger or smaller circle.

CHANGE FILL COLOR: To change the color of the circle, first select the circle object. Once selected, the ***TOOLS: SURFACES*** Tab will open up. Select the dropdown menu option beside "Fill color" and select the color to be used.

A slide bar is found on the menu under the "Fill color" function. This slide bar adjusts the level of transparency to the color. When the slider is all the way to the left ("-") the circle is opaque. As the slider is moved to the right (towards "+") the amount of color becomes more and more transparent.

CHANGE LINE COLOR: The line color of the circle can also be changed in a similar manner. Select the dropdown menu option beside "Line color" and select the color to be used.

CHANGE LINE WIDTH: The default line width is 1 mm. To change the line width, **<left-click>** on the circle to be changed. The ***TOOLS: SURFACES*** Tab will open that includes the following functions: "General", "Surfaces", and "Objects". The line width can be changed by replacing the value of "1" with another value under the "Surfaces" function.

Add Rectangle

Creating a rectangle on the Work Area is a simple matter of setting the Width and Height (in mm) on the ***INSERT*** Tab. The Rectangle object also uses the ***TOOLS: SURFACES*** tab similar to the Circle object. This Primer will be using the *Unitrack* dimensions (310mm, 620mm, etc.) for the module width instead of the "construction dimensions" (308mm, 618mm, etc.) for the size of the modules.

ADD RECTANGLE: Go to the ***INSERT*** Tab and select "Add rectangle". Move the mouse pointer to the center-point where the rectangle is to be placed and **<left-click>** with the mouse. The rectangle will appear on the Work Area. Note that the default rectangle size is a Width of "100" mm and a Height of "100" mm. These values can be changed, higher or lower, to make a larger or smaller rectangle.

CHANGE FILL COLOR: To change the color of the rectangle, select the object. Once selected, the ***TOOLS: SURFACES*** Tab will open up. Select the dropdown menu option beside "Fill color" and select the color to be used.

A slide bar is found on the menu under the "Fill color" function. This slide bar adjusts the level of transparency to the color. When the slider is all the way to the left ("-") the circle is opaque. As the slider is moved to the right (towards "+") the amount of color becomes more and more transparent.

CHANGE LINE COLOR: The line color of the circle can also be changed in a similar manner. Select the dropdown menu option beside "Line color" and select the color to be used.

CHANGE LINE WIDTH: The default line width is 1 mm. To change the line width, **<left-click>** on the circle to be changed. The ***TOOLS: SURFACES*** Tab will open that includes the following functions: "General", "Surfaces", and "Objects". The line width can be changed by replacing the value of "1" with another value under the "Surfaces" function.

Creating Inventory

Layout design for a train show can be aided greatly by developing an inventory of tables and modules. The following section sets out the steps needed to create an inventory of various objects using the steps outlined above for lines, circles and rectangles. It is also valuable in planning to keep information related to the venue where a particular venue has been used previously. This can be kept as part of the As-Built plan (to be described later) regarding an exhibition layout.

Tables

The most common non-model railroading object used in T-TRAK is tables. In general, the tables used come in 6-foot and/or 8-foot lengths. The following steps should be used to create a Table Object.

[Step 1] Under the ***SETTINGS*** Tab, set the "Measurement system" to "English decimal units (inches)"

[Step 2] Set Grid to 12

Note: Steps 3-5 are followed to create a 6-foot long table, Steps 6-8 are followed for an 8-foot long table.

Table – 6'

[Step 3] **CREATE RECTANGLE (72" X 30"):** To create a 6-foot table, select the ***INSERT*** Tab and set the rectangle width to "72" and the rectangle height to "30". Select "Add rectangle" and move the pointer onto the Work Area. <**left click**> to place the rectangle onto the work area. The resulting rectangle will have a **BLACK** line color 0.04" thick, and a GRAY fill color with approximately 40% transparency.

[Step 4] **SET LINE COLOR (*OPTIONAL*):** If you wish to change the line color for the rectangle, select the rectangle and then set the line color using the "Line color" dropdown menu on the ***TOOLS: SURFACES*** Tab.

[Step 5] **SET FILL COLOR (*OPTIONAL*):** If you wish to change the fill color for the rectangle, select the rectangle and set the fill color using the "Fill color" dropdown menu on the ***TOOLS: SURFACES*** Tab. Adjust the transparency using the slider found under the "Fill color" dropdown menu.

Table – 8'

[Step 6] **CREATE RECTANGLE (96" X 30"):** To create an 8-foot table, select the ***INSERT*** Tab and set the rectangle width to "96" and the rectangle height to "30". Select "Add rectangle" and move the pointer onto the Work Area. <**left click**> to place the rectangle onto the work area. The resulting

rectangle will have a **BLACK** line color 0.04" thick, and a GRAY fill color with approximately 40% transparency.

[Step 7] **SET LINE COLOR (*OPTIONAL*):** If you wish to change the line color for the rectangle, select the rectangle and then set the line color using the "Line color" dropdown menu on the ***TOOLS: SURFACES*** Tab.

[Step 8] **SET FILL COLOR (*OPTIONAL*):** If you wish to change the fill color for the rectangle, select the rectangle and set the fill color using the "Fill color" dropdown menu on the ***TOOLS: SURFACES*** Tab. Adjust the transparency using the slider found under the "Fill color" dropdown menu.

Single Module

Now that we have created objects to represent Tables, we can now turn our attention to adding Modules to our inventory. The easiest module to create is the Single Module. Figure 10 shows the progression of the creation of a Single Module through the steps given below.

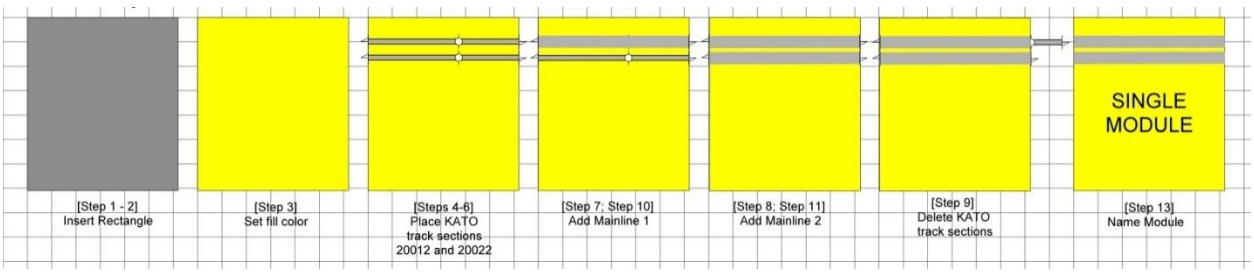


Figure 10 - Step-by-Step Single Module Progression in AnyRail

[Step 1] **CREATE RECTANGLE (310mm x 355mm):** To create a Single Module, select the ***INSERT*** Tab and set the rectangle width to "310" and the rectangle height to "355"[1]. Select "Add rectangle" and move the pointer onto the Work Area. <**left click**> to place the rectangle onto the work area. The resulting rectangle will have a **BLACK** line color 0.04" thick, and a GRAY fill color with approximately 40% transparency.

[Step 2] **SET LINE COLOR (*OPTIONAL*):** If you wish to change the line color for the rectangle, select the rectangle and then set the line color using the "Line color" dropdown menu on the ***TOOLS: SURFACES*** Tab.

[Step 3] **SET FILL COLOR (*OPTIONAL*):** If you wish to change the fill color for the rectangle, select the rectangle and set the fill color using the "Fill color" dropdown menu on the ***TOOLS: SURFACES*** Tab. Adjust the transparency using the slider found under the "Fill color" dropdown menu.

Note: *NTTT uses the "Fill color" option to identify the owner of the module. All modules owned by an individual are assigned the same fill color.*

[1] Module depths (i.e. Height) can vary depending on the fabricator of the Modules. NTTT typically builds to 355 mm, T-Kits and Masterpiece Modules are usually 330 mm (13") (except for the extra deep ones), and the original T-TRAK size was 216 mm (8.5"). "355" is used here simply because that is what our club uses.

[Step 4] **SET GRID:** Set the Grid for the Work Area to "50" under the ***SETTINGS*** Tab.

[Step 5] **MOVE MODULE TO GRID:** Move the module front onto a grid line by selecting the Rectangle and dragging it with the mouse.

[Step 6] **INSERT KATO UNITRACK:** Open the *KATO Unitrack* library and select *KATO* track #20012 (*186mm straight Double Track*). Align track section so that the centerline lines up with the second Grid Line from the front of the Module. Select *KATO* track #20022 (*124mm straight Double Track*) and attach to #20012. Select "Centerline" function under the **SHOW** Tab.

[Step 7] **INSERT MAINLINE 1:** Insert a line on the 2nd Grid Line from the front of the Module, where the *KATO Unitrack* intersects the module, following the centerline of the *KATO Unitrack* across the module. <**Left-click**> to start, <**double left-click**> (or "**ESC**") to end the line.

[Step 8] **INSERT MAINLINE 2:** Copy the line drawn in [Step 7] and paste over the second *KATO Unitrack* centerline.

[Step 9] **REMOVE KATO UNITRACK:** Attach a small piece of *KATO Unitrack* from the Track Library to the end of the *KATO Unitracks* placed on the Module, so that the track extends well past the side of the Module. <**left-click and hold**> to pull the track away from the Module. Press the "**Delete**" key to delete the Unitrack assembly.

[Step 10] **ADJUST LINE WIDTH AND COLOR:** Select the line drawn in [**Step 7**] and the ***TOOLS: LINES*** Tab will open. Set the "Line Width" to "25".

Select the "Line Color" dropdown menu and then select "More Colors". Set the Line Color to Light Gray "#B2B2B2" (second gray on the top row of colors, below the color wheel).

[Step 11] **ADJUST LINE WIDTH AND COLOR:** Repeat [**Step 10**] for the line drawn in [**Step 8**].

[Step 12] **GROUP OBJECTS:** Select all objects (the rectangle and track lines) and GROUP by using the "Group" function under the ***TOOLS: GROUP*** Tab.

Name the module

[Step 13] **ADD TEXT:** Add text to the rectangle by using the "Add Text" function under the ***INSERT: TEXT*** Tab. Position the pointer in the center of the rectangle and <left-click>. This will open a text box, allowing you to label the module.

Note: *NTTT uses the "Text" option to identify the module by name.*

[Step 14] **GROUP OBJECTS:** Select the module and text and GROUP by using the "Group" function under the ***TOOLS: GROUP*** Tab.

[Step 15] **SAVE FILE:** At this point you may save the file by selecting the "Save As" function under the FILE Tab.

Alternately, you can "Copy & Paste" the Grouped Module from [**Step 14**] into an *AnyRail* Master Library file.

Note: *NTTT uses a "Master Library" file, created in AnyRail, that contains images of all member's "show-ready" modules. Each member's modules are contained on a separate Layer*

in the Master Library. When planning for a show, all known participants Layers are then selected and unavailable participants Layers are hidden. Tables, miscellaneous items, and certain club-owned modules are placed in the NTTT Layer.

Double Module

The process for creating a Double Module image is identical to the creation of a Single Module. The single change takes place in **[Step 1]** where the rectangle with is set to "620" instead of "310". The remaining steps **[Steps 2 – 15]** listed are then done in the same manner as before.

Corner Module

Creating a Corner Module image follows a similar procedure as was used in the creation of a Single Module. See Figure 11.

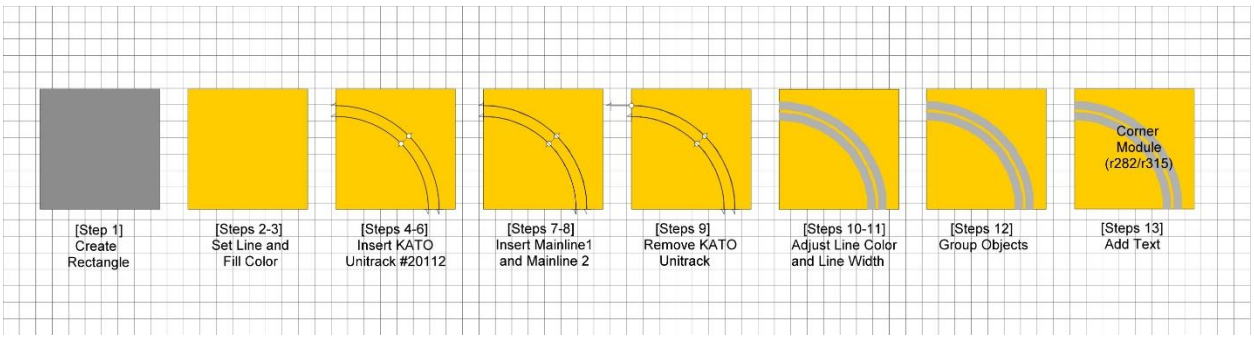


Figure 11 - Step-by-Step Corner Module Progression in AnyRail

[Step 1] **CREATE RECTANGLE (365mm x 365mm):** To create a Corner Module, select the ***INSERT*** Tab and set the rectangle width to "365" and the rectangle height to "365". Select "Add rectangle" and move the pointer onto the Work Area. <**left click**> to place the rectangle onto the work area. The resulting rectangle will have a **BLACK** line color 0.04" thick, and a GRAY fill color with approximately 40% transparency.

[Step 2] **SET LINE COLOR (*OPTIONAL*):** If you wish to change the line color for the rectangle, select the rectangle and then set the line color using the "Line color" dropdown menu on the ***TOOLS: SURFACES*** Tab.

[Step 3] **SET FILL COLOR (*OPTIONAL*):** If you wish to change the fill color for the rectangle, select the rectangle and set the fill color using the "Fill color" dropdown menu on the ***TOOLS: SURFACES*** Tab.

[Step 4] **SET GRID:** Set the Grid for the Work Area to "50" under the ***SETTINGS*** Tab.

[Step 5] **MOVE MODULE TO GRID:** Move the module front onto a grid line by selecting the Rectangle and dragging it with the mouse.

[Step 6] **INSERT KATO UNITRACK:** Open the *KATO Unitrack* library and select *KATO* track #20112 (*r282/r315-45 Curved Double Track*). Align track section so that the outer track centerline lines up with the second Grid Line from the front of the Module (*Note: ensure the ends are square*). If necessary, rotate the track by first selecting the track and then using the "Rotate"

function on the ***TOOLS: TRACK*** Tab. Select "Centerline" function under the **SHOW** Tab to display track centerline.

Add Mainlines

[Step 7] **INSERT MAINLINE 1:** The process of creating a curved line in *AnyRail* is to insert a line and then add a series of close-spaced control points along an existing curve following the centerline. If the points are close enough, the resulting line will appear to be a smooth curve.

Insert a line where the *KATO Unitrack* intersects the module, following the centerline of the *KATO Unitrack* around the module. <**Left-click**> to start, <**double left-click**> (or "**ESC**") to end the line. This will require approximately 30 intermediate points.

[Step 8] **INSERT MAINLINE 2:** Repeat **[Step 7]** over the second Centerline from Module edge to Module edge.

[Step 9] **REMOVE KATO UNITRACK:** Attach a small piece of *KATO Unitrack* from the Track Library to the end of the *KATO Unitracks* placed on the Module, so that the track extends well past the side of the Module. <**left-click and hold**> to pull the track away from the Module. Press the "**Delete**" key to delete the Unitrack assembly.

[Step 10] **ADJUST LINE WIDTH AND COLOR:** Select the line drawn in **[Step 7]** and the ***TOOLS: LINES*** Tab will open. Set the "Line Width" to "25".

Select the "Line Color" dropdown menu and then select "More Colors". Set the Line Color to Light Gray "#B2B2B2" (second gray on the top row of colors, below the color wheel).

[Step 11] **ADJUST LINE WIDTH AND COLOR:** Repeat **[Step 10]** for the line drawn in **[Step 8]**.

[Step 12] **GROUP OBJECTS:** Select the rectangle and track lines together first and then GROUP by using the "Group" function under the ***TOOLS: GROUP*** Tab.

Name the module

[Step 13] **ADD TEXT:** Add text to the rectangle by using the "Add Text" function under the ***INSERT: TEXT*** Tab. Position the pointer in the center of the rectangle and <left-click>. This will open a text box, allowing you to label the module.

Note: *NTTT uses the "Text" option to identify the module by name.*

[Step 14] **GROUP OBJECTS:** Select the Module and text together first and then GROUP by using the "Group" function under the ***TOOLS: GROUP*** Tab.

[Step 15] **SAVE FILE:** At this point you may save the file by selecting the "Save As" function under the FILE Tab.

Alternately, you can "Copy & Paste" the Grouped Module from **[Step 14]** into an *AnyRail* Master Library file.

180° Endcap Module

The creation of a 180° Endcap Module image follows the same process as for a Corner Module with a few minor modifications to the width of the rectangle **[Step 1]** and doubling the KATO Unitrack used for alignment **[Step 6].** See Figure 12.

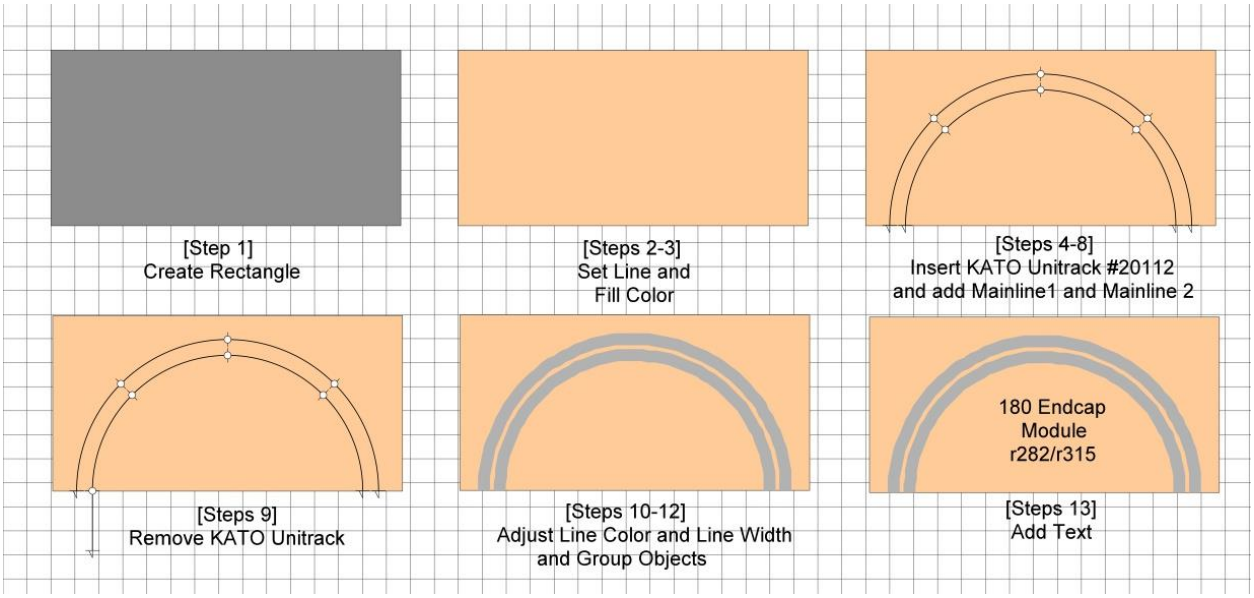


Figure 12 - Step-by-Step 180-Endcap Module Progression in AnyRail

[Step 1] **<u>CREATE RECTANGLE (730mm x 365mm):</u>** To create a Corner Module, select the ***INSERT*** Tab and set the rectangle width to "<u>730</u>" and the rectangle height to "<u>365</u>". Select "<u>Add rectangle</u>" and move the pointer onto the Work Area. <**left click**> to place the rectangle onto the work area. The resulting rectangle will have a **BLACK** line color 0.04" thick, and a GRAY fill color. Ensure that the transparency slider is to the left (i.e., no transparency).

[Step 2] **<u>SET LINE COLOR (*OPTIONAL*):</u>** If you wish to change the line color for the rectangle, select the rectangle and then set the line color using the "<u>Line color</u>" dropdown menu on the ***TOOLS: SURFACES*** Tab.

[Step 3] **<u>SET FILL COLOR (*OPTIONAL*):</u>** If you wish to change the fill color for the rectangle, select the rectangle and set the fill color using the "<u>Fill color</u>" dropdown menu on the ***TOOLS: SURFACES*** Tab.

[Step 4] **<u>SET GRID:</u>** Set the Grid for the Work Area to "<u>50</u>" under the ***SETTINGS*** Tab.

[Step 5] **<u>MOVE MODULE TO GRID:</u>** Move the module front onto a grid line by selecting the Rectangle and dragging it with the mouse.

[Step 6] **<u>INSERT KATO UNITRACK:</u>** Open the *KATO Unitrack* library and select *KATO* track #20112 (*r282/r315-45 Curved Double Track*). Align track section so that the outer track centerline lines up with the second Grid Line from the front of the Module (*Note: ensure the ends are square*). If necessary, rotate the track by first selecting the track and then using the "<u>Rotate</u>"

function on the ***TOOLS: TRACK*** Tab. Select "Centerline" function under the **SHOW** Tab to display track centerline.

Add Mainlines

[Step 7] **INSERT MAINLINE 1:** The process of creating a curved line in *AnyRail* is to insert a line and then add a series of close-spaced control points along an existing curve following the centerline. If the points are close enough, the resulting line will appear to be a smooth curve.

Insert a line on the front of the Module, where the *KATO Unitrack* intersects the module, following the centerline of the *KATO Unitrack* around the module from Module edge to Module edge. <**Left-click**> to start, <**double left-click**> (or "**ESC**") to end the line.

[Step 8] **INSERT MAINLINE 2:** Repeat **[Step 7]** for the second *KATO Unitrack* centerline.

[Step 9] **REMOVE KATO UNITRACK:** Attach a small piece of *KATO Unitrack* from the Track Library to the end of the *KATO Unitracks* placed on the Module, so that the track extends well past the side of the Module. <**left-click and hold**> to pull the track away from the Module. Press the "**Delete**" key to delete the Unitrack assembly.

[Step 10] **ADJUST LINE WIDTH AND COLOR:** Select the line drawn in **[Step 7]** and the ***TOOLS: LINES*** Tab will open. Set the "Line Width" to "25".

Select the "Line Color" dropdown menu and then select "More Colors". Set the Line Color to Light Gray "#B2B2B2" (second gray on the top row of colors, below the color wheel).

[Step 11] **ADJUST LINE WIDTH AND COLOR:** Repeat **[Step 10]** for the lines drawn in **[Step 8]**.

[Step 12] **GROUP OBJECTS:** Select the rectangle and track lines together first and then GROUP by using the "Group" function under the ***TOOLS: GROUP*** Tab.

Name the module

[Step 13] **ADD TEXT:** Add text to the rectangle by using the "Add Text" function under the ***INSERT: TEXT*** Tab. Position the pointer in the center of the rectangle and <left-click>. This will open a text box, allowing you to label the module.

Note: *NTTT uses the "Text" option to identify the module by name.*

[Step 14] **GROUP OBJECTS:** Select the Module and text together first and then GROUP by using the "Group" function under the ***TOOLS: GROUP*** Tab.

[Step 15] **SAVE FILE:** At this point you may save the file by selecting the "Save As" function under the FILE Tab.

Alternately, you can "Copy & Paste" the Grouped Module from **[Step 14]** into an *AnyRail* Master Library file.

T-Junction Module

The creation of a T-Junction Module image follows the same process as for a Corner Module with a few minor modifications to the width of the rectangle **[Step 1]** and addressing the *KATO Unitrack* arrangement **[Step 6]**. See Figure 13.

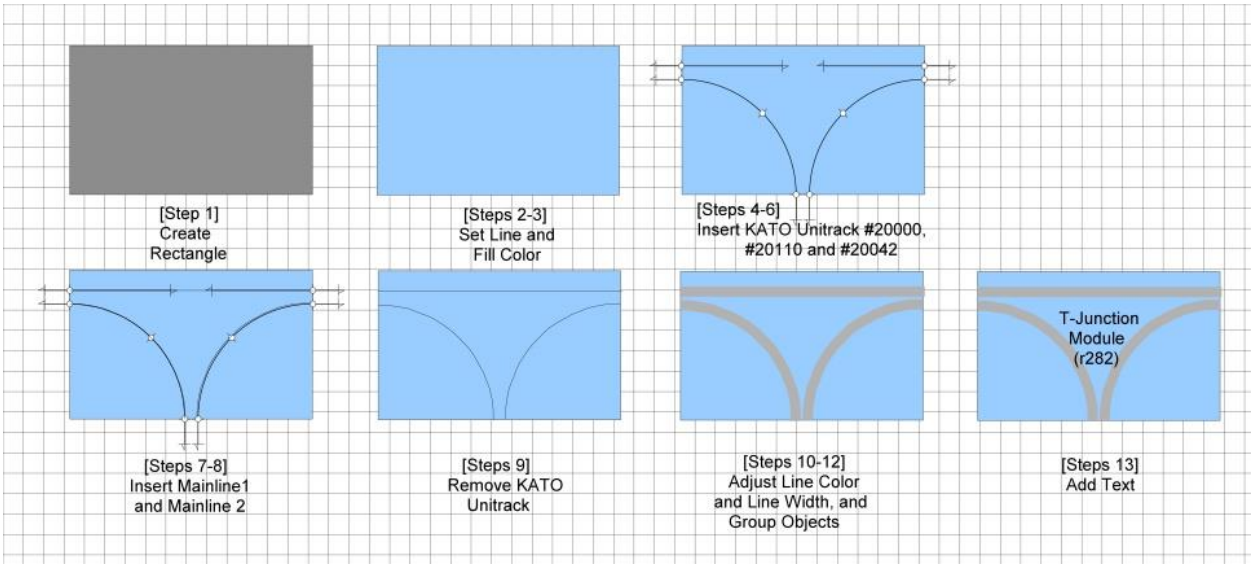


Figure 13 - Step-by-Step T-Junction Module Progression in AnyRail

[Step 1] **CREATE RECTANGLE (597mm x 365mm):** To create a Corner Module, select the ***INSERT*** Tab and set the rectangle width to "597" and the rectangle height to "365". Select "Add rectangle" and move the pointer onto the Work Area. <**left click**> to place the rectangle onto the work area. The resulting rectangle will have a **BLACK** line color 0.04" thick, and a GRAY fill color. Ensure that the transparency slider is to the left (i.e., no transparency).

[Step 2] **SET LINE COLOR (*OPTIONAL*):** If you wish to change the line color for the rectangle, select the rectangle and then set the line color using the "Line color" dropdown menu on the ***TOOLS: SURFACES*** Tab.

[Step 3] **SET FILL COLOR (*OPTIONAL*):** If you wish to change the fill color for the rectangle, select the rectangle and set the fill color using the "Fill color" dropdown menu on the ***TOOLS: SURFACES*** Tab.

[Step 4] **SET GRID:** Set the Grid for the Work Area to "50" under the ***SETTINGS*** Tab.

[Step 5] **MOVE MODULE TO GRID:** Move the module front onto a grid line by selecting the Rectangle and dragging it with the mouse.

[Step 6] **INSERT KATO UNITRACK:** Open the *KATO Unitrack* library and select *KATO Unitrack* #20000 (*248mm Straight Track*). Align track section so that the outer track centerline lines up with the second Grid Line from the front on the left side of the Module (*Note: ensure the ends are square*). Repeat with another #20000 on the right side of the Module (*Note: the two pieces of track WILL NOT connect in the middle of the module*).

Select *KATO Unitrack* #20110 (Curved radius 282mm, 45°) and create two 90° sections of track. If necessary, rotate the track by first selecting the track and then using the "Rotate" function on the ***TOOLS: TRACK*** Tab. Select "Centerline" function under the **SHOW** Tab to display track centerline.

Select *KATO Unitrack* #20042 (Straight 62mm, double track) and connect to #20000 and #20110 on the left-hand side of the Module. Repeat for the righthand side of the Module, as well as to the two 90° sections of track along the bottom edge of the Module (see Figure 14).

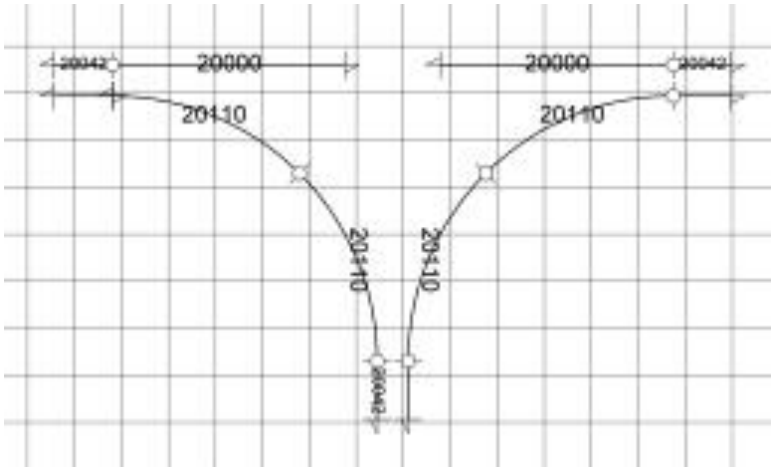


Figure 14 - T-Junction KATO Unitrack Layout

Add Mainlines

[Step 7] **INSERT MAINLINE 1:** Insert a line on the front of the Module, where the *KATO Unitrack* intersects the module, following the centerline of the *KATO Unitrack* around the module from Module edge to Module edge. <**Left-click**> to start, <**double left-click**> (or "**ESC**") to end the line.

[Step 8] **INSERT MAINLINES 2 AND 3:** Repeat **[Step 7]** for both curved sections of *KATO Unitrack*.

[Step 9] **REMOVE KATO UNITRACK:** <**left-click and hold**> one of the #20042 Unitrack pieces to pull the track away from the Module. Press the "**Delete**" key to delete the Unitrack track assembly.

[Step 10] **ADJUST LINE WIDTH AND COLOR:** Select the line drawn in **[Step 7]** and the ***TOOLS: LINES*** Tab will open. Set the "Line Width" to "25".

Select the "Line Color" dropdown menu and then select "More Colors". Set the Line Color to Light Gray "#B2B2B2" (second gray on the top row of colors, below the color wheel).

[Step 11] **ADJUST LINE WIDTH AND COLOR:** Repeat **[Step 10]** for the line drawn in **[Step 8]**.

[Step 12] **GROUP OBJECTS:** Select the rectangle and track lines together first and then GROUP by using the "Group" function under the ***TOOLS: GROUP*** Tab.

Name the module

[Step 13] **ADD TEXT:** Add text to the rectangle by using the "Add Text" function under the ***INSERT: TEXT*** Tab. Position the pointer in the center of the rectangle and <left-click>. This will open a text box, allowing you to label the module.

Note: *NTTT uses the "Text" option to identify the module by name.*

[Step 14] **GROUP OBJECTS:** Select the Module and text together first and then GROUP by using the "Group" function under the ***TOOLS: GROUP*** Tab.

[Step 15] **SAVE FILE:** At this point you may save the file by selecting the "Save As" function under the FILE Tab.

Alternately, you can "Copy & Paste" the Grouped Module from **[Step 14]** into an *AnyRail* Master Library file.

Layout Design

With the basics of creating Module objects now explored, we can now examine the concept of Layout Design. Basically, layout design is simply a matter of treating the Module objects as building blocks and arranging them into a desired layout.

Conventions

Each T-TRAK club can set their own conventions with respect to layout design. This Primer will share the conventions used by **NTTT**, as these are the conventions with which we are familiar.

Power Drops: Some modules have power drops installed, and others do not. The main trick to layout design is ensuring that modules equipped with power drops are situated in the right places on the layout.

Power Drop Spacing: Power Drops shall be placed on the layout at a minimum spacing of the equivalent of 6 Single Modules (approximately every 6 feet), and a maximum of 8 Single Modules (approximately every 8 feet).

Power Drop Labeling: Power drops shall be labeled on all *AnyRail* Modules for modules (equipped) with power drops. Each Power Drop for each wired Mainline shall be marked with a 'circled "O"' and a 'circled "I", as shown in Figure 15.

During Layout Design, a power drop that is used on a module shall have a colored "dot" on or near the modules to be connected to power. The color used in the "dot" is left to the discretion of the Layout Designer. Examples are shown in Figure 15.

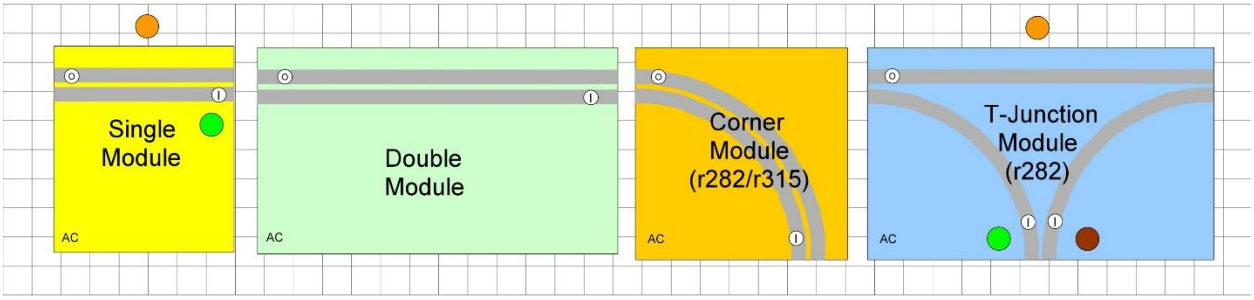


Figure 15 - Power Drop Marking Examples

AC Power Requirement Labeling: Modules that require AC Power for on-Module accessories have an "AC" placed on the leftmost back corner farthest from the Mainlines (for straight Modules, Corner modules and T-Junction Modules), the upper right corner for Endcap Modules.

Module Wiring: NTTT follows the T-TRAK convention for wiring – "Blue-White-White-Blue".

Mainline Bus Wire Connection: The Normal Polarity Indicators for placement along Mainlines to denote Bus Wire connection locations is a 20 mm circle with an appropriately observable color selection.

There are occasions in which polarity needs to be reversed on the bus cable for certain connections. The symbol used for this is a 20 mm white circle with a line color (line width of 10 mm) to match the appropriate mainline power indicator. This creates a circle of the appropriate color with a white dot in the center to denote reversed polarity. See Figure 16.

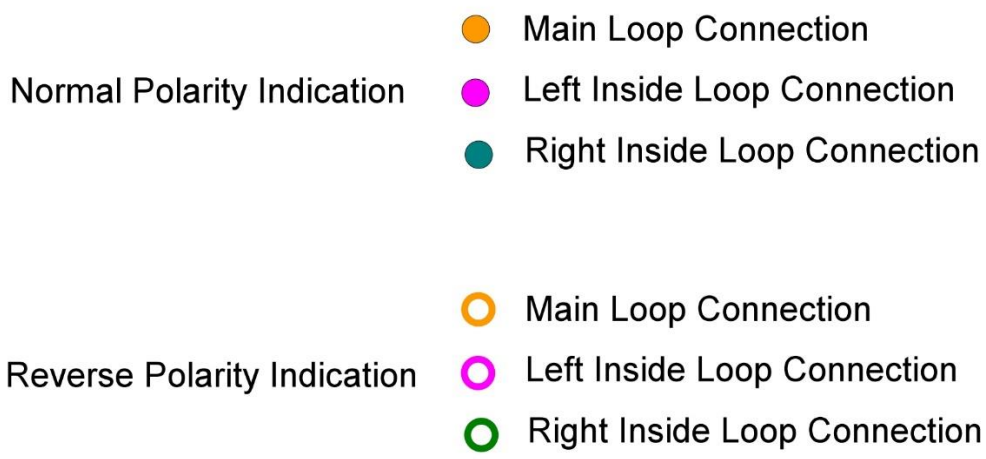


Figure 16 – Layout Polarity Indication Legend

Module Mainline Designation: A layout designed for an exhibition can have a number of different loops incorporated – from a single loop to a multiple number of distinct loops. The layout designer will need to designate them during the layout design.

Using Layers in *AnyRail*

The Layers function in *AnyRail* adds another dimension to the Layout Design. It is possible, through the use of layers, to stack various objects into a logical sequence. Each layer can be assigned a specific purpose such as "Tables" or "Modules". The use of layers allows moving or adjusting objects on a particular layer without impacting objects placed on other layers.

Exhibition Layout Scenario

We have gone through the process of creating objects to represent the most common Modules. It is now time to show how to use them in a hypothetical exhibition layout.

The Club has been invited to a local train show and assigned a venue space that is 25' wide by 15' deep. The facility will provide a total of four 8' tables for the Club's use. Five members are able to attend the train show and will be bringing 35 Single-equivalent Modules, two T-Junction Modules, four 90° Corner Modules and one Endcap Module.

2 DC throttles and 1 DCC Command Station will be used by the Club for this exhibition.

Layer 1 - Venue

We will first work on laying out the Venue in *AnyRail*. The Club has been assigned a space that is 25' wide, and 15' deep. A survey of the Venue reveals that there is one column, approximately 16" x 16" in the

upper right corner of the space. The column also contains two AC electrical outlets for use by the Club. See Figure 17.

[Step 1-1] **OPEN LAYERS**: Select "Layers" function on the **HOME** Tab.

[Step 1-2] **LAYER NAME**: Change layer name from "Layer 1" to "1 – Venue" in the "Layers" window on the left-hand side of the Work Area. Note that once a Layer is locked, an object selected on a locked Layer will have a "RED" dot (instead of a "GREEN" dot) above it.

[Step 1-3] **MEASUREMENT SYSTEM SETTING**: Open the **SETTINGS** Tab and set the "Measurement System" function to "English decimal units(inches)"

[Step 1-4] **WORK AREA LENGTH**: Set Work Area Length to "300" *{(12"/ft x 25') = 300"}*

[Step 1-5] **WORK AREA WIDTH**: Set Work Area Width to "180" *{(12"/ft x 15') = 180"}*

[Step 1-6] **WORK AREA GRID**: Set Grid to "12"

[Step 1-7] **VENUE FEATURES**: Add any significant known venue features (i.e. columns, wall indentions/protrusions, electrical outlets).

Per our survey for this example we know that there is one column, measuring 16" x 16", that has AC power outlets on opposite sides of the column.

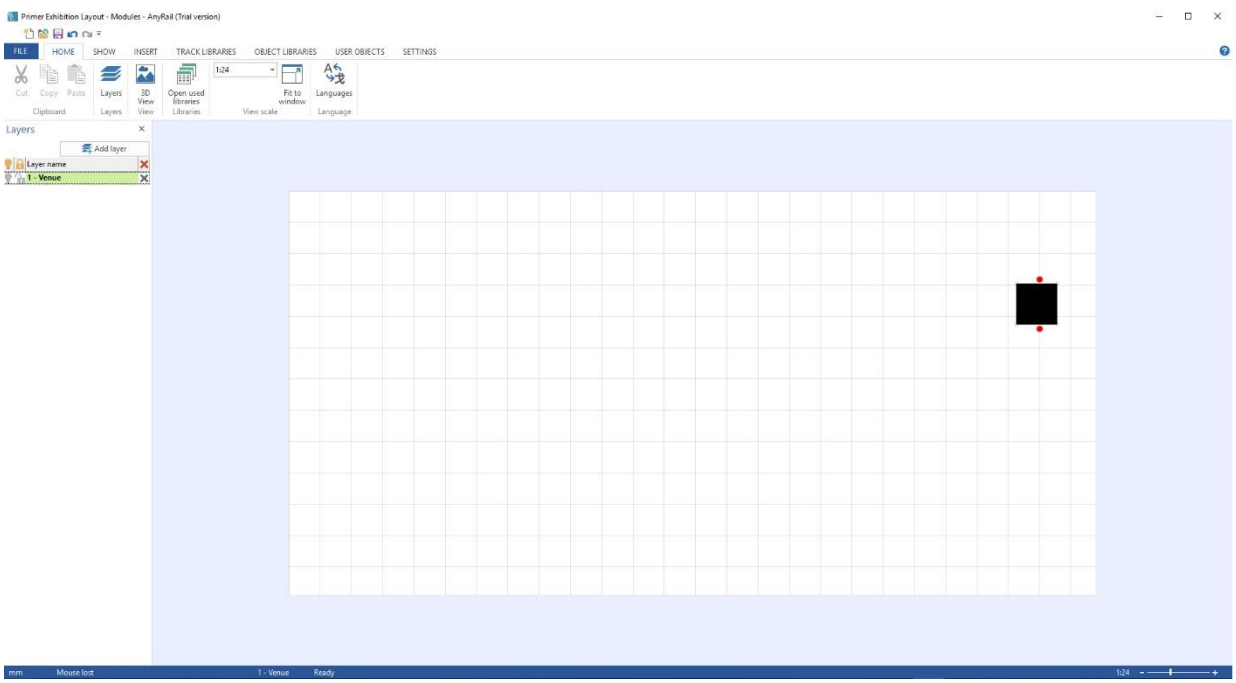


Figure 17 - Layer 1 - Venue Work Area

Layer 2 - Tables

Now that the Venue space has been defined we can layout the Table arrangement, taking the available space into consideration as well as the obstacles and electrical outlet placement. See Figure 18.

[Step 2-1] **<u>CREATE NEW LAYER</u>**: Create a new Layer by selecting the **HOME** Tab and using the "<u>Add Layer</u>" button in the Layers window on the left-hand side of the Work Area.

[Step 2-2] **<u>CHANGE LAYER NAME</u>**: Change layer name from "<u>Layer 2</u>" to "<u>2 – Tables</u>" in the "Layers" window.

[Step 2-3] **<u>ALIGN TABLES</u>**: For this example, place four 8' Tables, from the *AnyRail* Primer Library, in an inverted "|__ __|" such that two of the tables are across the top. Ensure that each table is an item of the Table Layer. Select all the Tables and <**left-click**> "<u>Send to Back</u>"

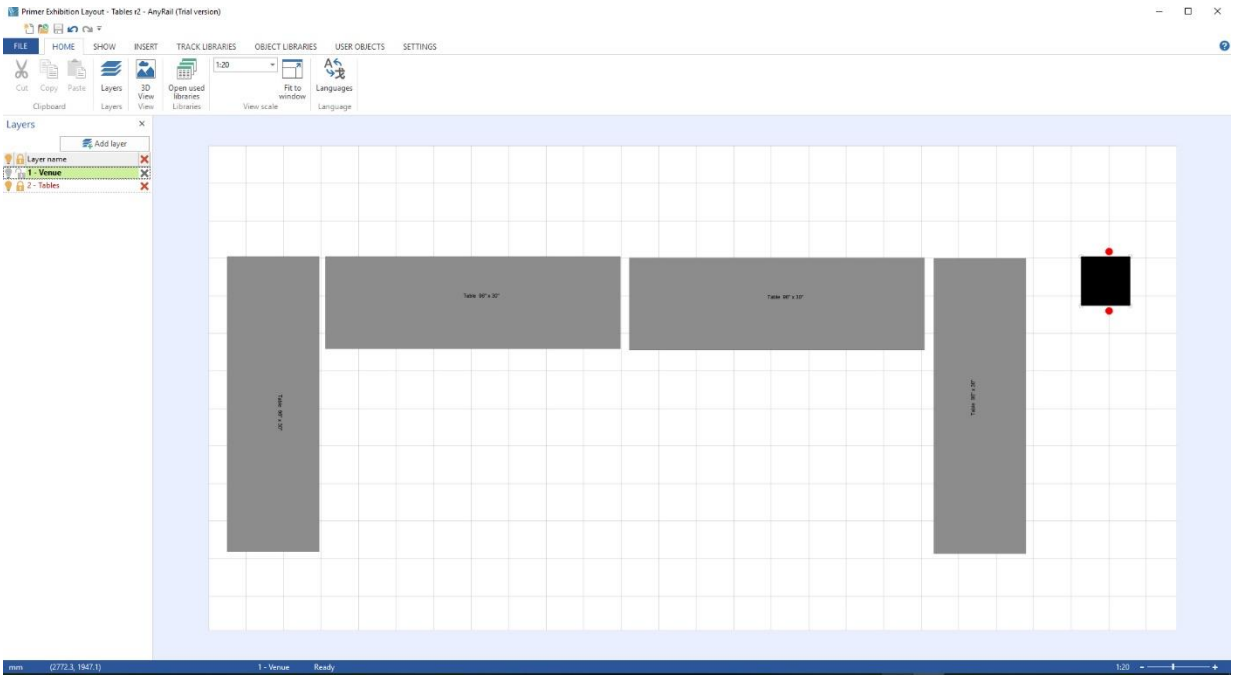


Figure 18 - Layer 2 - Table Work Area

Layer 3 - Modules

The next Layer to be placed is the Modules. A roster of available Modules is created after determining which Club Members are available. In this example, Club Members Andrew, Bill, Charlie, Daniel and Frank have indicated that they will be participating in the show. Edward has indicated that he is unavailable and therefore his Modules have not been included. See Figure 19.

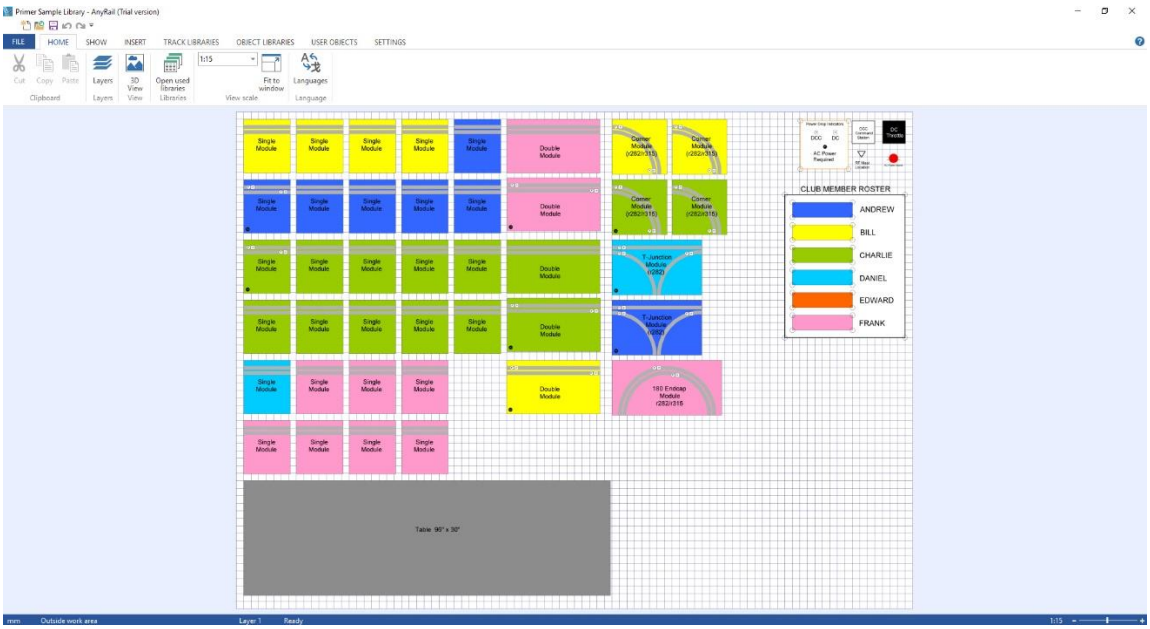


Figure 19 - Available Club Member Modules Roster

[Step 3-1] **LOCK PREVIOUS LAYERS**: In the "Layers" window <**left-click**> on the LOCK icon next to layers "1 – Venue" and "2 – Tables" to lock these layers.

[Step 3-2] **ADD NEW LAYER**: Create a new Layer by selecting the **HOME** Tab and using the "Add Layer" button in the Layers window on the left-hand side of the Work Area.

[Step 3-3] **CHANGE LAYER NAME**: Change layer name from "Layer 3" to "3 – Modules" in the "Layers" window.

[Step 3-4] **CHECK MEASUREMENT SYSTEM**: Open the **SETTINGS** Tab and change the "Measurement System" function to "Metric decimal units (mm)".

[Step 3-5] **INSERT AVAILABLE MODULES ON WORK AREA**: Copy Modules from the Club's Master Library *AnyRail* file to layout plan (ensure each is a member of the Module Layer).

[Step 3-6] **MODULE ALIGNMENT**: Begin placing modules on the tables to create the layout.

[Step 3-7] **MODULE GROUPING**: Use the "Group" function under the **TOOLS: GROUPS** Tab to 'capture' a number of adjacent modules into one grouping. This will prevent the Modules already aligned with each other from separating unexpectedly.

[Step 3-8] **ROTATE MODULE(S)**: Select the Module(s) and use the "Rotate" function under the "**TOOLS: GROUPS** Tab to rotate the Module/grouping of Modules into the proper orientation. (*Note: that the "Rotate" function can also be used when aligning the individual modules to construct a Module Grouping*).

[Step 3-9] **MINOR ADJUSTMENTS**: The "Arrow" keys will adjust a selected object/Module 1mm at a time by ensuring the "Set Grid" function on the **HOME** Tab is set to "1". This is sometimes necessary if groupings of Modules need minor adjustments for some reason (or if tables need to be adjusted slightly to ensure that modules are supported in all four corners).

[Step 3-10] Repeat **[Steps 3-6 to 3-9]** for T-Junction Modules, Corner Modules and Endcap Modules.

Figure 20 shows the Final Layout of Modules and table positions, pending a review for any modifications to correct the location of Power Drops (*see next section:* Layout Wiring). Note that tables can be positioned such that modules bridge across the table gaps.

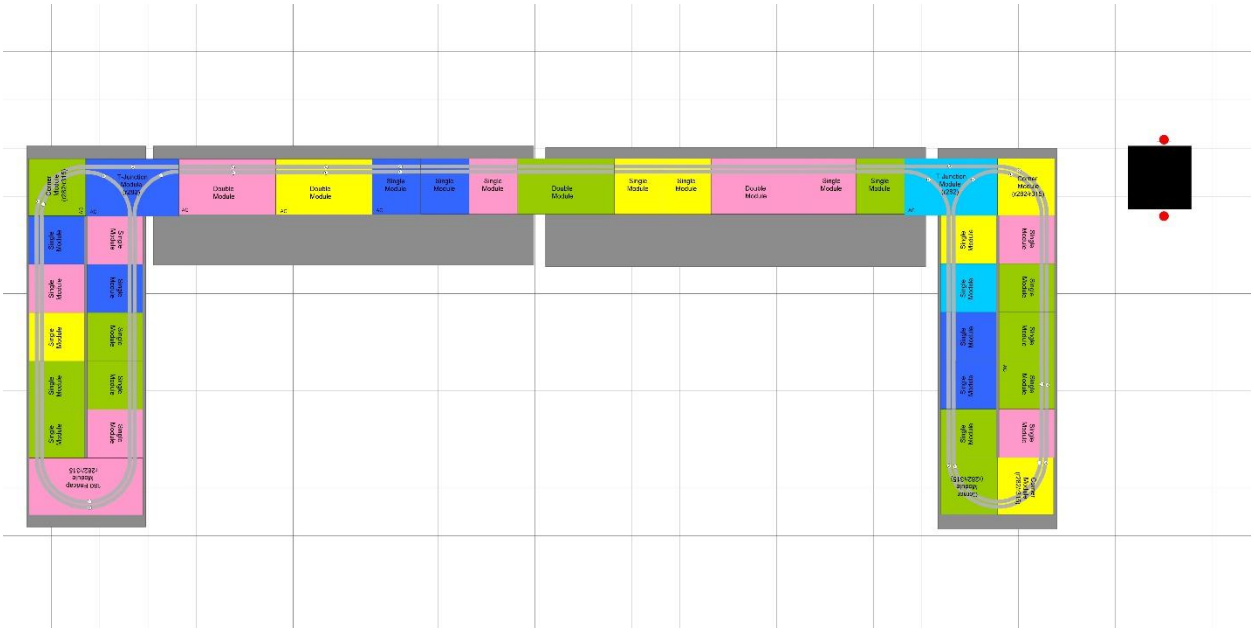


Figure 20 – Layer 3 - Module Placement and Orientation

This example has made use of the **<ARROW>** keys to position the modules in the layout. A more advanced alignment method of perfectly aligning modules, using *AnyRail*'s "Snap-to-Grid" feature, is described in **Appendix A**.

Layer 4 - Layout Wiring

We can now create a Layer to manage the Layout Wiring. The Modules with Power Drops were marked during the initial phase when the Module object was built. By keeping this formatting in mind, it is easy to readily see where a DCC or DC connection can be made to Modules equipped with Power Drops.

[Step 4-1] LOCK PREVIOUS LAYERS: In the "Layers" window ensure on the LOCK icon is "locked" next to layers "1 – Venue", "2 – Tables", and "3 – Modules".

[Step 4-2] ADD NEW LAYER: Create a new Layer by selecting the **HOME** Tab and using the "Add Layer" button in the Layers window on the left-hand side of the Work Area.

[Step 4-3] CHANGE LAYER NAME: Change layer name from "Layer 4" to "4 –Wiring" in the "Layers" window.

[Step 4-4] IDENTIFY ACTIVE POWER DROPS ON PLAN: Place color-coded indicators for active Power Drops. In our example, a circle 20mm in diameter is used and then filled with the appropriate color as chosen by the Layout Designer. Keep in mind the maximum distance between Power Drops. See Figure 21.

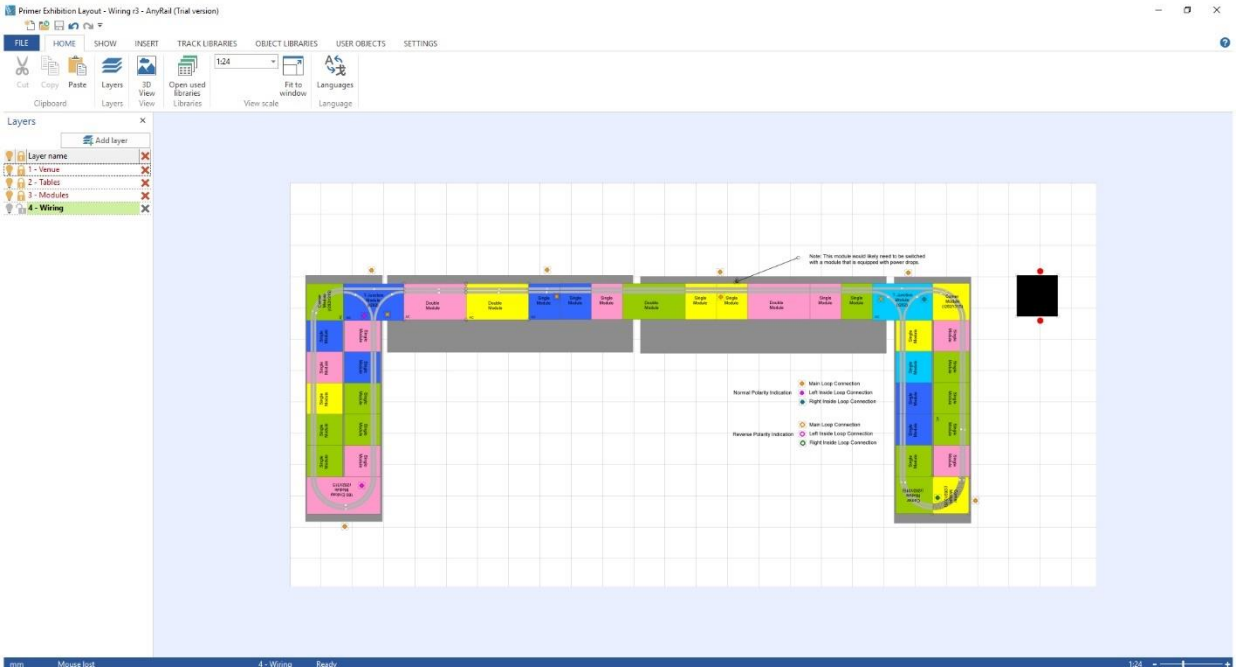


Figure 21 – Layer 4 - Power Drop Locations

Figure 21 shows the location of the Power Drops. These are as follows for this example:

1) The T-Junction in the upper left-hand corner has two DCC Power Drops, and one DC Power Drop for the inner loop.
2) The Endcap on the lower left-hand corner has a DCC Power Drop on Mainline 1.
3) A Single Module along the top edge has two DCC Power Drops – one on each set of tracks.
4) The T-Junction Module in the upper right-hand corner has 2 DCC Power Drops and a DC Power Drop for the inner loop.
5) The Corner Module in the lower right-hand corner has a DCC Power Drop on Mainline 1.
6) Note after reviewing the original plan, it is apparent that a second Single Module along the top edge requires a DCC Power Drop, and therefore will need to be switched with a Module that is equipped with Power Drops that are not used in the initial plan.

Layer 5 - Miscellaneous

The final step is to place any miscellaneous items on the Layout Plan. Miscellaneous items include DC Throttles, the DCC Command Station, and any other items not included in the previous four Layers.

[Step 5-1] **LOCK PREVIOUS LAYERS**: In the "Layers" window ensure on the LOCK icon is "locked" next to layers "1 – Venue", "2 – Tables", "3 – Modules", and "4 – Layout Wiring".

[Step 5-2] **ADD NEW LAYER**: Create a new Layer by selecting the **HOME** Tab and using the "Add Layer" button in the Layers window on the left-hand side of the Work Area.

[Step 5-3] **CHANGE LAYER NAME**: Change layer name from "Layer 5" to "5 – Miscellaneous" in the "Layers" window.

[Step 5-4] **<u>IDENTIFY DC THROTTLE LOCATION(S):</u>** Place the DC Throttles, if required, near the DC Loops. In this example, the two inner loops on both sides of the Layout are planned for DC. These are shown in Figure 22 as a BLACK square.

[Step 5-5] Identify DCC Command Station Location: Place the DCC Command Station as close to the center of the planned Layout as possible. This is shown as a WHITE square in Figure 22.

[Step 5-6] Although not used in this example, any other items not placed in on the layout in the previous four layers would now be added to the Layout Plan.

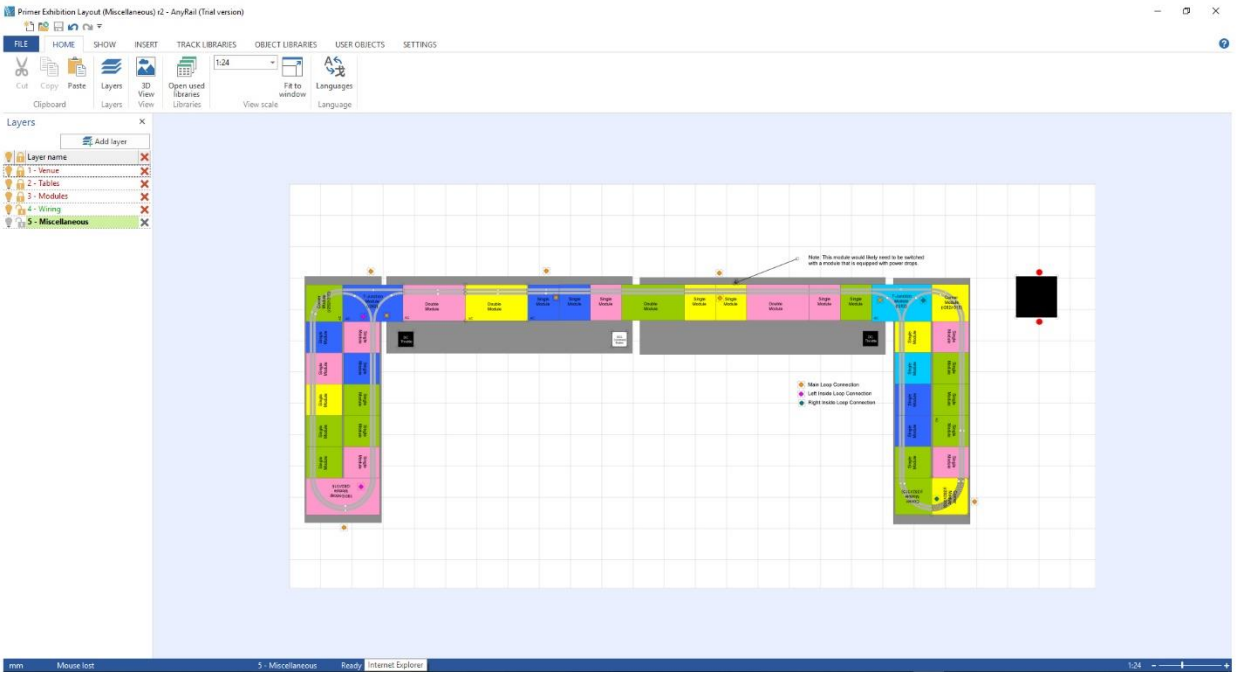


Figure 22 – Layer 5 - Miscellaneous Items

Best Practice for Clubs

Club Layout Library

It is best for a Club to keep a record of all Modules owned by its members, and any Club-owned Modules. If the Club is small, these images can be kept in a single *AnyRail* Library file.

In the case of **NTTT**, each Member's Modules available for use are kept on individual *AnyRail* Layers in the Master Library file for the Club. Club-owned items, such as Command Stations, DC Throttles, Radio Mast and other items are identified on their own Layer as well. Club members are encouraged to keep the Layout Planner informed about the details of new (and available) Modules so that they can be added to the Master Library.

Each member is also asked to name each Module they own. Whereas "Single Module", "Double Module", etc. was used in this Primer, that information would be replaced on each Module image with a short descriptive name that is unique.

Club member modules

As can be seen from the example Exhibition Layout earlier in this Primer, Club Member Modules can be color-coded with a unique color for each member. This helps to identify to the member which modules they are requested to bring to an exhibition, as not all modules owned are necessarily required. The Layout Plan is usually sent out in an email to participating Club members in advance of the exhibition and therefore a quick glance can tell which Modules have been included in the planned Layout.

Club owned modules

There are times when Modules are owned by the Club, and not necessarily by any individual. These would be "specialty" Modules – that might not be used that often. In the case of **NTTT**, a large staging yard which typically covers two banquet tables is one example. These are identified on the *AnyRail* file for the "custodian" (Club Member) responsible for storing and transporting if necessary.

Typical tables

The typical tables used have been six-foot (72" x 30") and eight-foot (96" x 30") banquet tables. **NTTT** does not own any tables and therefore the size of the tables is usually one of the questions asked during the initial survey/contact for an exhibition. Additional tables could be kept on the Club Inventory *AnyRail* file should a Club own their own tables.

Miscellaneous

Many Clubs own items other than modules. These may include, but not limited to, items such as:

a) power extension cords and power strips
b) DCC Throttles
c) DCC Command Station
d) Radio mast
e) WiFi module
f) Layout wires and connectors
g) Spare track and unijoiners
h) Spare t-nuts and bolts
i) Common tools (such as levels, screw drivers and pliers)
j) ***KATO*** Car rerailers
k) Static displays

Some of these items are needed for a layout plan (such as the DCC Command Station) and others do not (such as spare track and unijoiners for example). It is up to the individual club to determine if they wish to use such a layer to identify all club-owned items or just those required for a layout plan. The Miscellaneous Layer could also include a check-list of items needed for an exhibition.

Create layout plans for every exhibition

It is a good practice to create a Layout Plan for every exhibition. These can be used to inform Club Members, provide ideas for future layout planning, and as a record of Club Member participation.

1) Drafts
   Draft Layouts are created in advance as Club Members indicate their ability to participate. The Draft Layouts are usually very fluid and can change quickly should table orientation or other issue arise that dictates potential major changes.

2) Layout Plan
   The Layout Plan is sent out to participating Club Members in the week prior to an exhibition. This informs everyone who will be attending, and which Modules are required at the exhibition for set-up.
3) As-built Plan
   It sometimes happens that circumstances dictate that changes need to be made once the set-up is underway. This could be as simple as having to rearrange the position of some Modules to accommodate the late arrival of a Club Member with their Module(s), or it can be something major as having venue space being changed during set-up. As an example, NTTT had a case where the space was changed at the last minute because the aisleways did not initially meet the Fire Marshal's approval. The As-built Plan is also the final "plan of record" for Member participation.

   This is created by taking the Layout Plan and doing a "markup" of a printed version of the layout plan to show any last-minute changes. The As-Built plan is completed after the exhibition and it is archived and sent out to participating Club Members.

Summary

This Primer has shown how to create *AnyRail* objects for straight Single and Double Modules, Corner Modules, Endcap Modules and T-Junction Modules. Modules not identified in this document can be created by the user with the experience gained in following this Primer.

The idea of a Module Library was discussed. This Primer has shown how the flexibility of the *AnyRail* program can be used with the *AnyRail* objects created to help Clubs maintain member module inventories and plan out exhibitions using their available Modules.

Appendix A takes the sample layout described in the main body of this Primer and applies the principles of using the "Snap-to-Grid" feature found in AnyRail to align the modules quickly and accurately.

Appendix B includes tables of the T-TRAK Module dimensions for all scales that can then be used to create *AnyRail* objects in those scales.

Appendix C contains a listing of the Figures referenced throughout this Primer. These individual files can be found in a compressed ZIP file on the T-TRAK Wiki (ttrak.wikidot.com/anyrail). The T-TRAK Wiki site will be the authoritative site should any revisions for the document be created.

Finally, an *AnyRail* file is included as part of this Primer which includes N-scale objects for a Single Module, Double Module, Corner Modules (using r282/r315), Endcap Module (using r282/r315), and T-Junction Modules (using r282) as well as 6' and 8' Tables.

Appendix A – Layout Planning Using *AnyRail's* Snap-to-Grid Function

The original presentation regarding module placement and alignment in the main body demonstrated how this could be done using the <**ARROW**> keys and "ROTATE" function to move/align the modules in place. However, it was continually felt that the use of *AnyRail's* Snap-to-Grid function could be used to align the modules more easily and precisely. This Appendix will explain this approach further.

Six Simple Rules for Alignment

As you work with aligning modules with *AnyRail*, you will learn what works best for you. In our experience, we have found that the following simple rules seem to work well.

1) Always look to align modules starting on the far right or the bottom of a planned layout, since the alignment takes place in the upper-left corner of the grid. Once the right-most or bottom-most modules are aligned, it does not matter what combination of modules existed once they are grouped together.

2) Always align and group the Single and Double Modules first, since they are the most numerous and most likely to have more than one or two adjacent to each other. If the right-most module (in "track up" position) or bottom-most module (in "track left" position) is a Corner Module or an Endcap Module, then it can be added to the line of modules being aligned but MUST be the final module on the right (if "track up") or at the bottom (if "track left"). Corner Modules and Endcap Modules cannot be aligned with Single/Double Modules if one choses to align with "track right" or "track down".

3) If there is a non-Single/Double Module in the middle of a set of modules to be aligned, then all Single/Double modules to the right (in "track up") or below (in "track left") of the non-Single/Double Module should be aligned (Snap-to-Grid set to 310 mm) and grouped first - and then the Snap-to-Grid is changed to the width of the non-Single/Double module so that the Single/Double group can be aligned properly to the non-Single/Double module in question.

4) You may have to switch the Snap-to-Grid values between "310", "365" and "597" multiple times to align a complete layout.

5) Don't forget to constantly group a set of modules as you go along with the alignment process.

6) Continually look to rotate a module (or group of modules) to get the necessary orientation for alignment. Sometimes it will be necessary to rotate modules 180° (or +/- 90°), align modules and group, then rotate back into the original orientation.

Discussion of Snap-to-Grid Function and Values

Make use of the "Snap to Grid" function on the **SETTINGS** Tab to align the modules edges. For example, since each Single/Double Module is a multiple of "310", set the "Snap to Grid" function to "310". This will cause the Modules to line up as they are placed. Changing the "Snap to Grid" function for Corner Modules,

Endcaps and T-Junctions can also be accomplished in the same manner by remembering the dimensions for these Modules and being aware of their orientation on the Layout Plan.

The alignment of Modules takes place in the upper left-hand corner of the grid square. This is why it is important to keep the orientation of the Modules in mind while setting to the grid.

Dimensions for all Modules discussed in this Primer are included in Table A-1 as a refresher. Values indicated in BOLD are the values to remember when using the "Snap to Grid" function.

Table A1 - Module Dimensions

Module	Height (mm)	Width (mm)
Single Module	**355**	**310**
Double Module	355	**620**
Corner Module	**365**	365
Endcap Module	365	**730**
T-Junction Module	365	**597**

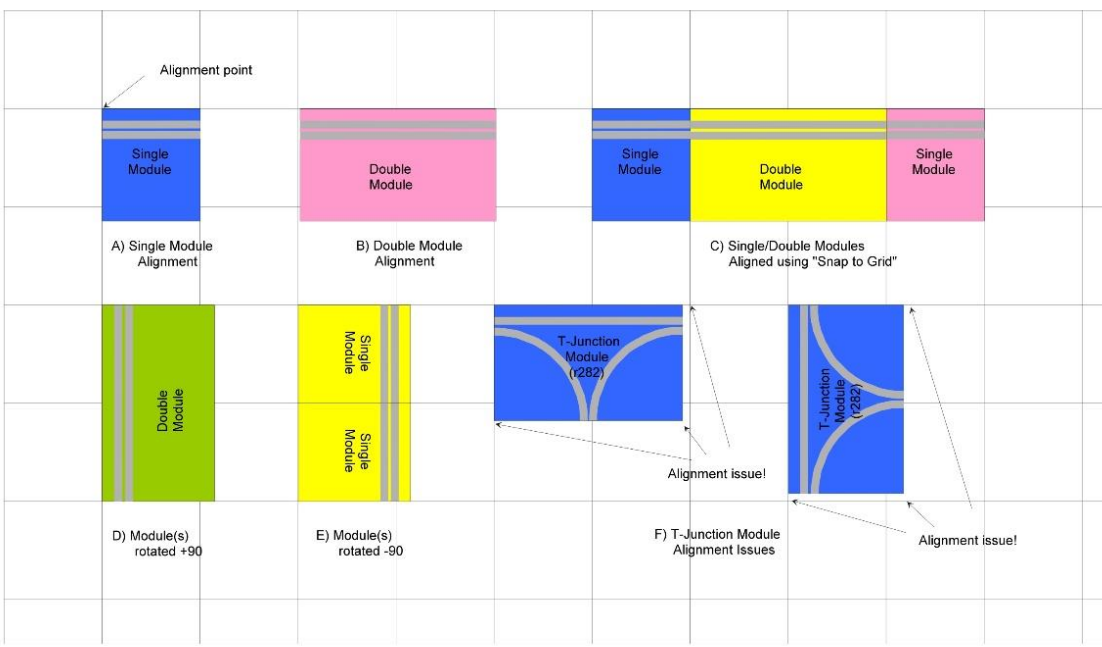


Figure A- 1 – Module Alignment to 310 mm Grid

Figure A-1 shows a section of the Work Area. The Grid is set to "310". In this Figure, one can see that all the Modules shown have aligned to the upper left-hand corner of the grid.

A) *Shows the alignment of a Single Module.* Note that since the Grid is set to "310", both the upper left corner and upper right corner as set to the Grid. However, the lower left corner and lower right corner are NOT aligned to the Grid because a Single Module has a depth of "355" mm. ***Note:*** *This is considered "track up" orientation.*

B) *Shows the alignment of a Double Module.* Since the Double Module has a width that is a multiple of "310", it also aligns to the Grid at the top, but the bottom two corners are not aligned. ***Note:*** *This is considered "track up" orientation.*

C) *Shows a Grouping of various Single/Double Modules.* Since all the upper corners are aligned (and not overlapping), it is possible to Group these modules together for further placement. ***Note:*** *This is considered "track up" orientation.*

D) *Shows +90 Rotation of a Double Module.* Note that while the left-hand side of the Module aligns to the Grid, the right-hand side does not. Again, this is because the module has a depth of "355" mm, not "310" mm. ***Note:*** *This is considered "track left" orientation.*

E) *Shows -90 Rotation of Single Modules*. Again – the left-hand side of the Modules is aligned to the Grid, while the right-hand side does not. ***Note:*** *This is considered "track right" orientation.*

F) *Alignment Issues. Shows Alignment Issues with* a T-Junction module, using a Grid of "310". Only the upper left-hand corner is aligned to the Grid.

Alignment Issue Correction by changing Grid Size

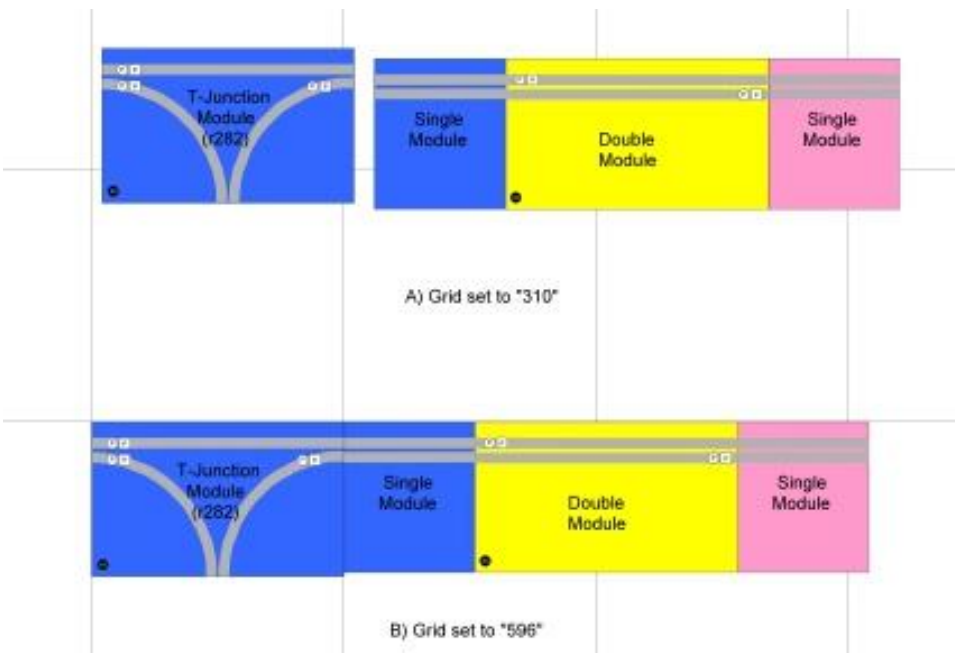


Figure A- 2 - Alignment Issue Correction by changing Grid Size

Figure A-2 demonstrates how to correct the alignment issue problem with other-sized Modules. In this example, two Single Modules and a Double Module are connected to the right side of a T-Junction Module. The Single/Double Modules have been previously aligned using a Grid of "310" and "Grouped".

A) *Mis-alignment:* Shows the mis-alignment of the Single/Double Modules to the T-Junction Module because the Grid (310 mm) is not correct for the width of the T-Junction Module (597 mm).

B) *Correct alignment.* Shows the correct alignment of the Single/Double Modules to the T-Junction Module after the "Snap to Grid" was set to "597" (the width of a T-Junction Module). The modules could be "Grouped" at this point. The Grouping can then be rotated -90, +90 or 180 to match the necessary alignment.

Snap-to-Grid Alignment Example

As a refresher, the same set of modules/layout that was described in the main body of this Primer will be used to demonstrate the use of the Snap-to-Grid feature in this Appendix. This is reproduced in Figure A-3 below.

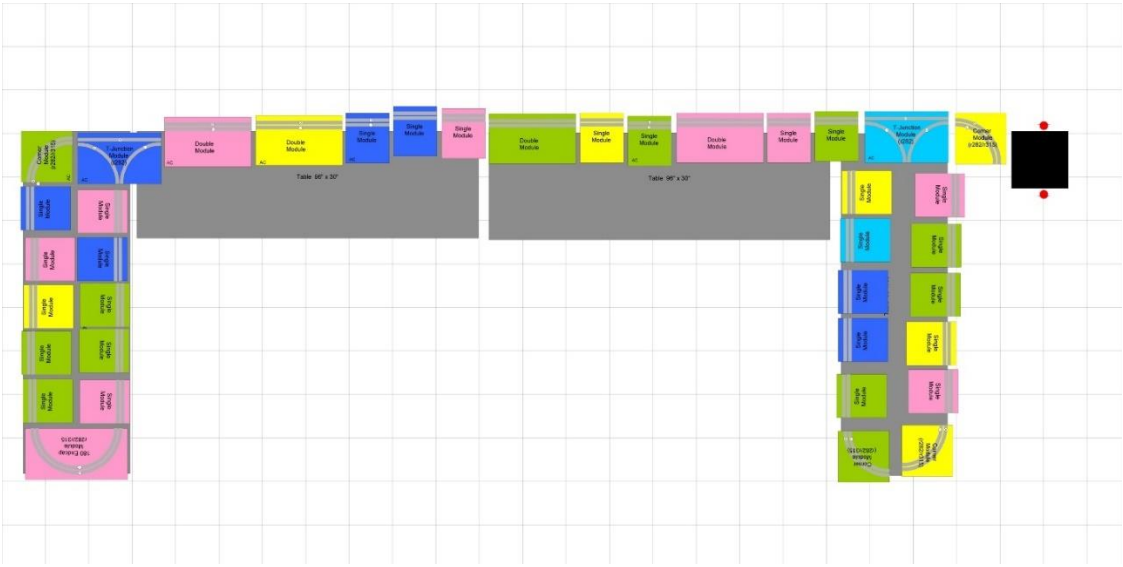


Figure A- 3 - Example Exhibition Layout

The alignment of the modules in the figures on the following pages was accomplished by using three Snap-to-Grid values: 310 mm, 365 mm and 597 mm. Through the careful application of these values, and the use of the "Rotate" function (+90°, -90 °, and 180 °) where necessary, the modules in this layout can be aligned quickly and easily using the Snap-to-Grid feature of *AnyRail*.

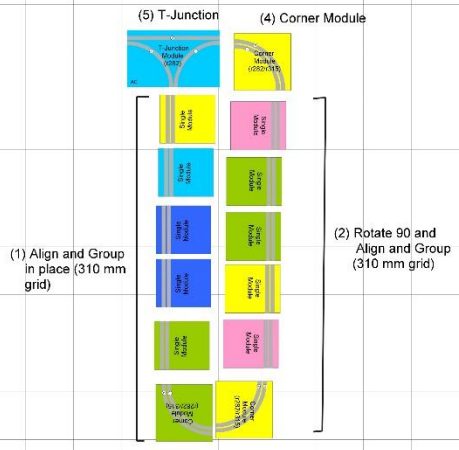
Each Figure contains the group of modules to be aligned at the top of the figure. Steps are then provided (along with a corresponding image) to demonstrate each step in that Phase for the alignment of the modules.

There are three Phases in this example. These are:

- Phase 1: Figure A-4 - Right-most Module set (consisting of 6 steps)
- Phase 2: Figure A-5 - Top (front) Module set (consisting of 3 steps)
- Phase 3: Figure A-6 - Left-most Module set (consisting of 6 steps)

Note: *Due to changing the Snap-to-Grid values to align the various modules in the following figures, the Grid Lines on the images should not be viewed as the Grid Lines used at the time the modules were aligned for each step. This is simply a function of AnyRail showing what the last set of Grid Lines used were placed. Groupings were then moved on the page to space the individual steps appropriately on the figure.*

Phase 1: Alignment of right-most set of modules



Steps for Alignment:

1. Start with the first group (1) of Single/Double modules. Set the Grid to 310 and align the modules. Since no track will connect to the lowest (green Corner Module), it can be included in the alignment set. Group these modules together when alignment is complete.
2. Select the second group (2) of modules. Rotate these modules 90 so that the first module in alignment is a Single/Double with 310 mm width. Align these modules, and align to yellow Corner Module (4) as the right-most module. Group this together
3. Set grid to 365 mm. Rotate Group (2) 90 and Group (1) 180. Align the two groups together (3). Note that the upper left-most Module must be a Corner Module (for the 365 mm spacing). Group this set of modules together.
4. Rotate Corner Module (4) and rotate the new Group (3) 90 so that the yellow Corner Module is in the upper left-hand corner of the grouping.
5. Rotate the T-Junction module(5) and align with the yellow Corner Module (4) in the Grouping. Group this set of Modules together.
6. Rotate this group -90 to return to original position.

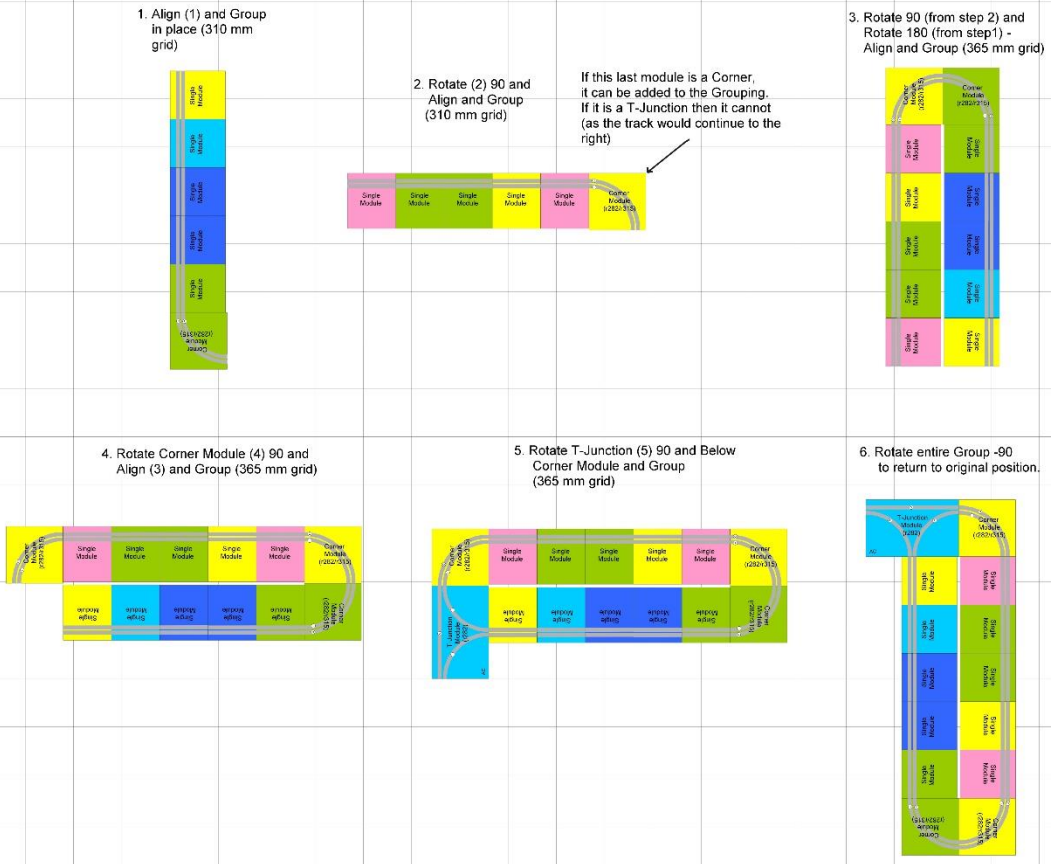


Figure A- 4 - Phase 1 Alignment Steps

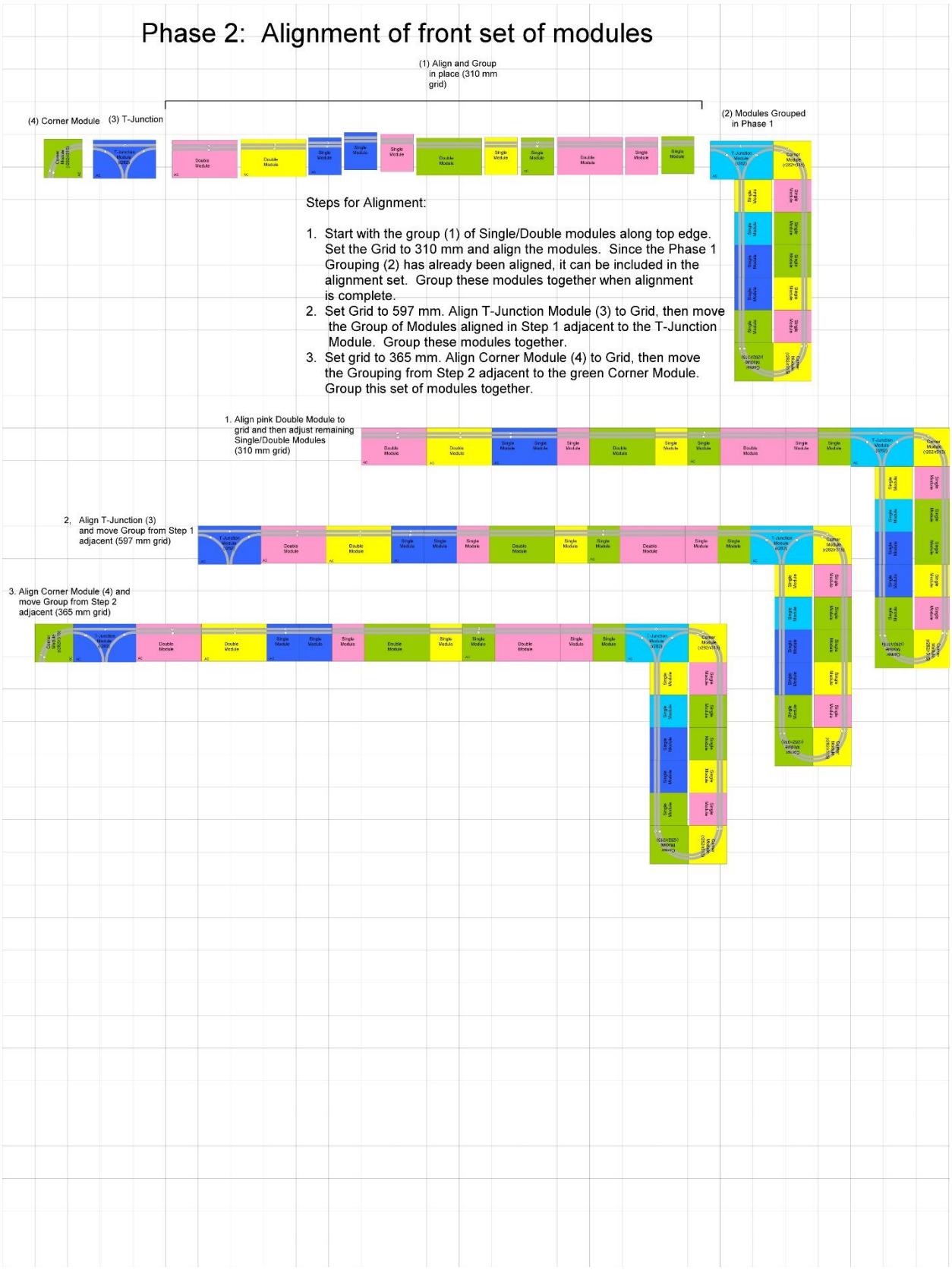


Figure A- 5 - Phase 2 Alignment Steps

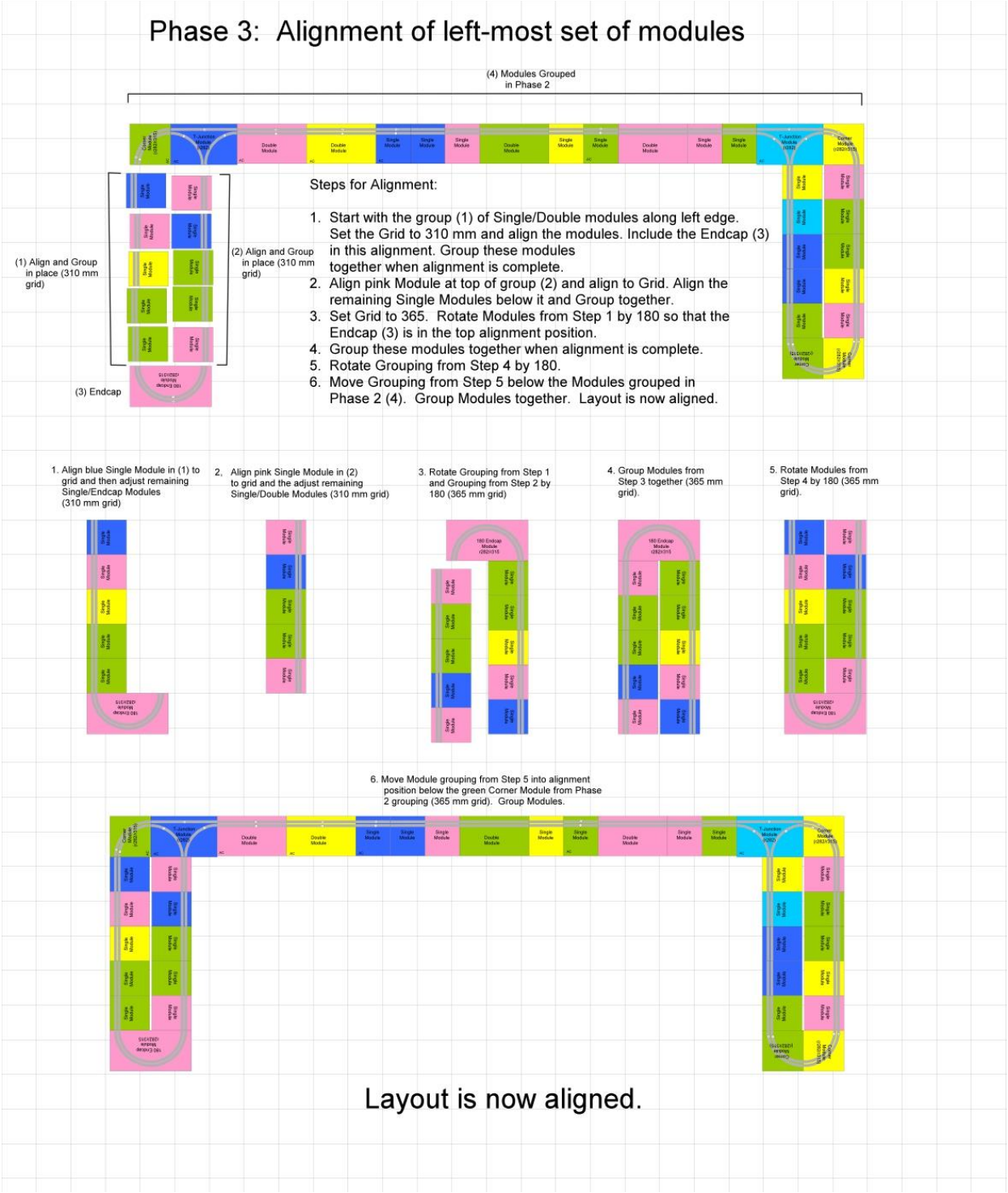


Figure A- 6 - Phase 3 Alignment Steps

Dealing with Atypical Alignment of Module(s)

I came across an old layout plan from our club that “flipped” a T-Junction Module so that the front of that module faced to the rear of the layout. Since the track is laid 50 mm from the front face, this obviously meant that the T-Junction was to be used in an atypical way and therefore issues would arise in trying to use *AnyRail* to align those modules. However, it was not actually that difficult and just required a couple of extra steps, using the <**ARROW**> keys, to ensure proper module alignment. This scenario is shown in Figure A-7.

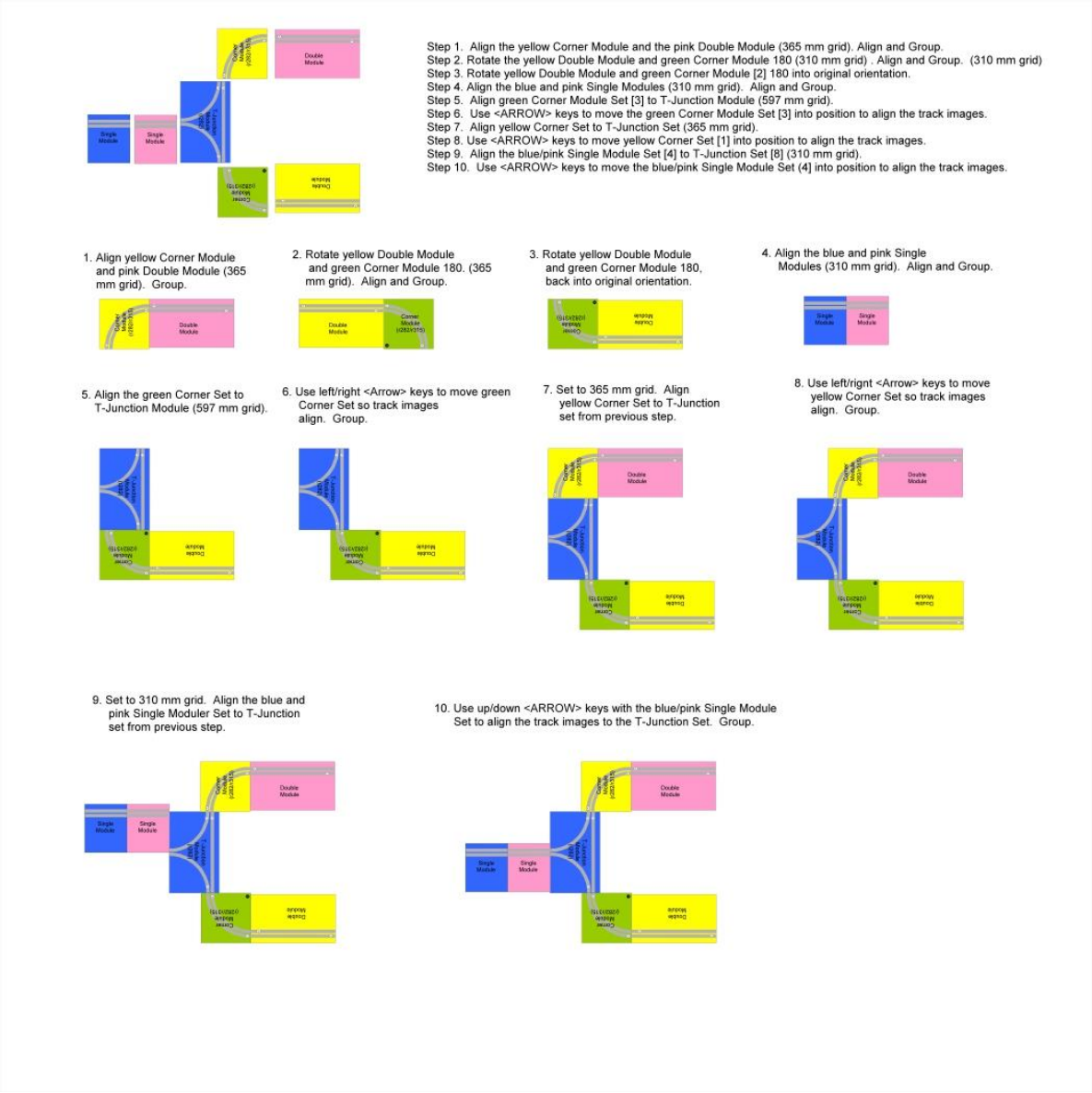


Figure A- 7 - Atypical Orientation Alignment Steps

Appendix B – T-TRAK Module Dimensions for All Scales

While this Primer focused on T-TRAK-N, one of the strengths of the T-TRAK concept is that it can be applied easily to other scales. The following Tables list the appropriate Module dimensions for all scales.

The procedure for creating objects in scales other than N-Scale is done in the same manner described in this Primer, changing the necessary parameters to the associated values listed in the tables below.

Table B1 – Module Dimensions for All Scales

Module Object	Dimension	T-TRAK-Z	T-TRAK-N	T-TRAK-TT	T-TRAK-HO/OO	T-TRAK-S	T-TRAK-O
Single	**Width**	330 mm	310 mm	498 mm	492 mm	30 "	40 "
	Height	285 mm	355 mm	470 mm	700 mm	27.5 "	27.5 "
Double	**Width**	660 mm	620 mm	1096 mm	984 mm	60 "	80 "
	Height	285 mm	355 mm	470 mm	700 mm	27.5 "	27.5 "
Corner	**Width**	295 mm	365 mm	482.6 mm	711 mm	28 "	28 "
	Height	295 mm	365 mm	482.6 mm	711 mm	28 "	28 "
Endcap	**Width**	590 mm	730 mm	482.6 mm	1422 mm	56 "	56 "
	Height	295 mm	365 mm	482.6 mm	711 mm	28 "	28 "
T-Junction	**Width**	415 mm	597 mm	749 mm	1160 mm	45 "	78 "
	Height	295 mm	365 mm	482.6 mm	711 mm	28 "	28 "

Note: the terms “Width” and “Height” are those used by AnyRail during the definition of a rectangle size. The use of “Height” in this context is not to be confused with the T-TRAK specification of the height from the base of the module to the track ballast (i.e., 2 ¾” to 4” for T-TRAK-N).

Table B2 – Track Placement Dimensions for All Scales

	T-TRAK-Z	T-TRAK-N	T-TRAK-TT	T-TRAK-HO/OO	T-TRAK-S	T-TRAK-O
Offset to Centerline	84 mm	50 mm	86 mm	104 mm	5 "	4 "
Track Center	25 mm	33 mm	43 mm	60 mm	5 "	6 "

Appendix C – Table of Figures

This Appendix contains a list of the Figures found in this Primer. To aid the reader, the original JPEG files of these Figures can also be found in a compressed ZIP file (AnyRail_Primer_Figures.zip) on the T-TRAK Wiki page (page location: ttrak.wikidot.com/anyrail):