Quick Start Guide

Restriction of Use

This guide is intended for users of Vital-Sim products only.

Users of Vital-Sim products, including this Guide are governed by the license and support agreement that follows.

LICENSE AND SUPPORT AGREEMENT

PLEASE READ THIS LICENSE AND SUPPORT AGREEMENT (THE "**AGREEMENT**") CAREFULLY BEFORE USING THIS VITAL-SIM SOFTWARE AND DOCUMENTATION (THE "**LICENSED MATERIALS**"). THIS AGREEMENT IS A BINDING CONTRACT BETWEEN VITAL-SIM INC. ("**VITAL-SIM**") AND THE CUSTOMER ("**YOU**").

THIS AGREEMENT SETS OUT THE TERMS AND CONDITIONS UPON WHICH VITAL-SIM (I) LICENSES THE LICENSED MATERIALS TO YOU AND (II) PROVIDES SUPPORT AND MAINTENANCE SERVICES TO YOU IN RESPECT OF THE LICENSED MATERIALS ("**SUPPORT**").

YOU WILL BE BOUND BY THE TERMS OF THIS AGREEMENT FROM THE EARLIER OF (I) THE DAY VITAL-SIM'S RECORDS INDICATE THAT YOU RECEIVED THE HARDWARE KEY THAT ATTACHES TO AND COMMUNICATES WITH A COMPUTER AND PERMITS YOU TO USE AND ACCESS THE SOFTWARE (THE "**HARDWARE LOCK**"), AND (II) THE DAY YOU INSTALL AND USE THE LICENSED MATERIALS (THE "**EFFECTIVE DATE**").

IF YOU DO NOT AGREE WITH THE TERMS OF THIS AGREEMENT, RETURN THE HARDWARE LOCK AND DO NOT INSTALL THE LICENSED MATERIALS, OR IF YOU HAVE ALREADY INSTALLED THE LICENSED MATERIALS, UNINSTALL THEM IMMEDIATELY.

IF YOU ARE ENTERING INTO THIS AGREEMENT UPON RECEIPT OF AN UPDATE OR NEW VERSION, YOU ACKNOWLEDGE AND AGREE THAT IN CONSIDERATION OF THE RECEIPT OF THE UPDATE OR NEW VERSION, ANY LICENSED MATERIALS PREVIOUSLY RECEIVED FROM VITAL-SIM SHALL BE SUBJECT TO THESE UPDATED TERMS WHICH REPLACE AND SUPERSEDE ANY PREVIOUS AGREEMENT THAT APPLIED TO THE PREVIOUSLY DELIVERED LICENSED MATERIALS. HOWEVER, THE EFFECTIVE DATE FOR PURPOSES OF DETERMINING THE SUPPORT TERM WILL REMAIN THE FIRST DATE YOU RECEIVED THE HARDWARE LOCK OR INSTALLED AND USED THAT SOFTWARE OR DOCUMENTATION.

Capitalized terms used but not otherwise defined in this Agreement have the meaning set out in Exhibit A – Definitions.

License to the Licensed Materials

License Grant – Subject to and conditional on Your compliance with the terms and conditions of this Agreement, Vital-Sim hereby grants You a non-exclusive, non-transferable license to Use the Licensed Materials solely for Your internal business purposes.

Copies – You may install any number of copies of the Licensed Materials, provided that You may only execute the Software on a single personal computer or work station which has the Hardware Lock installed. The Software may not be executed on servers for access by multiple work stations with a single Hardware Lock. Vital-Sim will provide You with one Hardware Lock for each License for VSLS you acquire.

Restrictions – You may not:

copy, modify, enhance, translate or adapt the Licensed Materials other than as expressly permitted by this Agreement;

reverse engineer, disassemble, decompile or create a derivative works of the Software or a Hardware Lock except and only to the extent that such activity is expressly permitted by applicable law;

alter or remove any proprietary rights or copyright notice or identification that indicates Vital-Sim's ownership of the Licensed Materials;

transfer, resell or grant sublicenses of any of Your rights under this Agreement or distribute, rent, lease, lend or otherwise make the Licensed Materials available to any third party;

Use or permit the Use of the Software to provide any form of timesharing, outsourcing, rental or third party bureau service purposes, commercial or otherwise; or

exploit the Licensed Materials other than as permitted under this Agreement.

Support Services

Provided that You have paid all Support Fees owing under this Agreement, Vital-Sim will provide the Support listed below during the Support Term.

During Business Hours Vital-Sim will provide the following Support:

Installation Assistance – Is available for You with an appointment and Vital-Sim will provide You with telephone support during such appointment to help You install Your licensed copy of the Licensed Materials.

Help with Problems – Vital-Sim will provide telephone and email support to help You resolve or identify Patches for operational issues or Defects You may encounter with the Software ("**Problems**"). Vital-Sim may not be able to help You resolve all Problems You encounter and will only be able to provide help to the extent it is able to reproduce the Problem and such Problems relate to the Software. Help with Problems does not include assistance with signal design issues or questions.

Limitation – Vital-Sim will make reasonable efforts to help You install the Licensed Materials and resolve Problems, but reserves the right, in its sole discretion, to limit the amount of time it spends providing You Support services.

If Vital-Sim makes an Update generally available to its customers, it will provide that Update to You without cost.

If Vital-Sim makes a New Releases generally available to its customers, it will provide that New Release to You without cost.

Your obligations

In order to allow Vital-Sim to provide Support, You must:

provide Vital-Sim with accurate and detailed information for each Problem that You report to Vital-Sim;

conduct any diagnostic and test activities requested by Vital-Sim; and

if requested, provide Vital-Sim with remote access to the Software in accordance with Vital-Sim's specifications as communicated to You from time to time.

Your Contact

You must designate a contact person ("**Your Contact**") with whom Vital-Sim will communicate in relation to Support. You must notify Vital-Sim of the contact details, and any changes to those contact details, for Your Contract including telephone and facsimile numbers and email addresses. You may change Your Contact at any time by giving Vital-Sim reasonable notice of such change.

Your Contact must be trained in the use of the Software, familiar with the Documentation and devote any necessary time and effort to assist Vital-Sim in resolving Problems in accordance with this Agreement.

You will be solely responsible for any costs or expenses You incur in performing Your obligations under this Agreement, including the cost of any telecommunications or internet access charges.

Contacting Vital-Sim

Your Contact can contact Vital-Sim by: telephoning 403-830-0393; sending an email to support@vital-sim; or using the support that may be available on Vital-Sim's website.

Excluded Services

Support does not include:

installation, training, configuration, customization or other services not expressly described in Section 0;

help with any Problem caused by:

Your use of the Licensed Materials other than in accordance with this Agreement;

modifications or alterations to the Licensed Materials not made by Vital-Sim;

use of the Licensed Materials in connection or combination with equipment, devices or software that are not specified in writing by Vital-Sim as being compatible with the Software;

Your failure to implement any Patches or Updates that are made available to You or;

Your failure to implement any New Release of the Software, if Vital-Sim has given You at least 180 days' notice that it will no longer be supporting previous releases of the Software; or

any Support provided by Vital-Sim, at Your request, which is outside Business Hours or at Your facilities, (together the "**Excluded Services**"). Vital-Sim may, but is under no obligation to, perform such Excluded Services for You upon receipt of a request to do so.

Fees and Taxes

License Fees – You are responsible for paying the license fee associated with the Licensed Materials which Vital-Sim will indicate to You on one or more invoice.

Support Fees

There is no fee payable for Support from the Effective Date until the date that is one year after the date Vital-Sim's records indicate that Vital-Sim sent You the Hardware Lock ("**Initial Support Term**").

The Support Term will automatically renew for successive one year terms (each a "**Renewal Support Term**") unless either of us provides notice to the other of its intention not to renew at least 30 days before the expiry of the then current Support Term.

For each Renewal Support Term, You will pay a non-refundable fee of 20% of the total amount You paid to license the Licensed Materials (including amounts paid for additional licenses for VSLS including for related compilers, accessory programs, and other similar tools or software), as reflected in Vital-Sim's records. ("**Support Fee**"). Vital-Sim may increase the Support Fee for any Renewal Term by giving You notice of such increase at least 45 days before expiry of the then-current term of this Agreement. Vital-Sim will issue You an invoice for the Support Fee annually in advance at least 45 days prior to the end of the then current term of the Agreement.

Payment Terms

You must pay any invoices rendered by Vital-Sim under this Agreement within 30 days of their issue by Vital-Sim. All amounts will be payable in the currency indicated on the invoice or, if no such currency is specified, in US dollars.

Overdue payments under this Agreement will bear interest at the rate of 1% per month (12% per annum) on the amount outstanding from the date when payment is due until the date payment in full is received by Vital-Sim.

Taxes – You are responsible for all taxes, except income taxes, which Vital-Sim is required to collect or You are required to withhold in relation to this Agreement.

Intellectual Property Rights

Vital-Sim retains title to and ownership of all rights (including copyright and all other intellectual property rights) in and to any Licensed Materials. You acquire no rights whatsoever to all or any part of such Licensed Materials except for Your license to Use such Licensed Materials in accordance with this Agreement.

The Licensed Materials are protected by copyright laws and international copyright treaties, as well as other intellectual property laws and treaties. The Licensed Materials are licensed, not sold. All rights not expressly granted to You are reserved to Vital-Sim.

Confidentiality

"**Confidential Information**" of a party means any and all materials and/or information of whatever kind a party ("**Disclosing Party**"), any of its affiliates, or third parties to which the Disclosing Party has an obligation of confidentiality, which has or will come into the possession or knowledge of the other party ("**Receiving Party**") in connection with or as a result of entering into this Agreement, including, this Agreement, the Licensed Materials, and information about past, present or future technologies. Confidential Information shall not include materials or information that:

is or becomes a part of the public domain through no act or omission of the Receiving Party;

was in the Receiving Party's lawful possession prior to the disclosure and had not been obtained by the Receiving Party either directly or indirectly from the Disclosing Party;

is lawfully disclosed to the Receiving Party by a third party without restriction on disclosure; or

is independently developed by the Receiving Party.

The Receiving Party agrees:

to take all measures necessary to keep the Confidential Information confidential; and

not to release, disclose, divulge or otherwise make available any of the Confidential Information to any person except:

employees on a "need to know basis" in respect of the activities contemplated by this Agreement, provided that such employees receive instructions requiring them not to disclose, use or copy the Confidential Information except as expressly permitted by this Agreement; or

subcontractors, representatives and legal and professional advisors, provided that they are bound by obligations of confidentiality which are no less protective of the Confidential Information than this Section 0.

Disclosure of Confidential Information will be permitted if such Confidential Information is required to be disclosed pursuant to a final order or judgment of a court of competent jurisdiction, and, in such case, the parties will cooperate with one another to attempt, if possible, to obtain an appropriate protective order or other reliable assurance that the confidentiality of the Confidential Information will be maintained.

The Receiving Party acknowledges that monetary damages may not be a sufficient remedy for a breach of the obligations under Section 0 and that the Disclosing Party will be entitled, without waiving any of its other rights or remedies, to such injunctive or equitable relief as may be deemed proper by a court of competent jurisdiction.

Disclaimer of Warranties

The Licensed Materials and Support are provided on an "as-is" "where-is" basis without any representations or warranties of any kind. Vital-Sim disclaims all representations, warranties and conditions, express, implied or collateral, including the implied warranties or conditions of merchantability, merchantable quality, fitness for a particular purpose, infringement and those arising by statute or otherwise in law or from the course of dealing or usage of trade.

Liability

Limitation of Liability – The total liability of Vital-Sim to You for all claims, suits, actions and proceedings howsoever arising, directly or indirectly, under or relating to this Agreement or its subject matter, including those based on breach or rescission of contract (including fundamental breach or breach of fundamental term), restitution, tort (including negligence), breach of trust or fiduciary duty or otherwise, shall not exceed, in the aggregate, the amounts actually paid by You to Vital-Sim pursuant to Section 0 of this Agreement in the 12 months preceding the event giving rise to the claim, suit, action or proceeding.

Consequential Damages – In no event will Vital-Sim or its directors, officers, employees or shareholders be liable for any claims for punitive, exemplary, aggravated, indirect, incidental, consequential, special damages, lost business revenue, lost profits, failure to realize expected savings, loss of data, or loss of business opportunity under or relating to this Agreement or its subject matter, whether based on breach or rescission of contract (including fundamental breach or breach of fundamental term), restitution, tort (including negligence), breach of trust or fiduciary or otherwise, even if Vital-Sim has been advised of the possibility of such damages. You acknowledge that the Software is not a substitute for the exercise of prudent engineering and operating judgment in the operation of a railway, and Vital-Sim shall not be responsible for and disclaims

any liability for bodily injury, death and damages to tangible property resulting from the operation of a railway even if arising in connection with Your Use of the Software.

Indemnity – You agree to indemnify and hold Vital-Sim harmless from and against any loss, cost, expense or damage arising out of any claim, suit, action or judgment brought against Vital-Sim by any of Your customers or any other third party in connection with Your Use of the Software.

Force Majeure – Vital-Sim will not be liable for any failure to perform its obligations under this Agreement where that performance is delayed, prevented, restricted or interfered with for any reason outside Vital-Sim's reasonable control.

Copyright Infringements.

Claims – If the Licensed Materials are in Vital-Sim's opinion likely to or do become the subject of a claim for infringement of another party's copyright, patent or other intellectual property, Vital-Sim may, at its option:

modify the Licensed Materials to make them non-infringing;

obtain for You the right to continue Using the Licensed Materials; or

immediately terminate this Agreement.

If Vital-Sim elects to terminate this Agreement, Vital-Sim will refund You (i) an amount equal to the license fees paid by You in the last 10 months for VSLS subject to a straight-line depreciation of 10% per month and (ii) a pro-rata refund of any pre-paid Support Fees.

Limitation – Section 0 states the entire liability of Vital-Sim with respect to claims for copyright infringement, and except as provided in Section 0, Vital-Sim will have no liability to You whatsoever for any loss or damage or infringement claims against You by third parties arising out of or related to any allegation or determination that Your use of the Licensed Materials infringes any copyright or other proprietary or intellectual property right.

Term and Termination

This Agreement is effective from the Effective Date and will continue in perpetuity unless terminated in accordance with Sections 0 or 0.

Vital-Sim may, by giving You notice, terminate this Agreement with immediate effect if:

You breach a provision of this Agreement and such breach is, in the reasonable opinion of Vital-Sim, capable of being cured, but You fail to cure such breach within 30 days (or 5 days in respect for failure to make a payment) of receiving notice of the breach from Vital-Sim (In the event Your breach is a failure to pay Support Fees, the Support Term, rather than the Agreement, shall be terminable on notice by Vital-Sim); or

You become insolvent, make an assignment for the general benefit of creditors, any proceedings are commenced by or against You under any bankruptcy or insolvency laws or for the appointment of a receiver, a receiver-manager or any other official with similar powers for You are commenced, or You cease to carry on business.

If the Support Term is terminated or expires and You wish to re-instate Support, You can only do so by (i) paying any Support Fees which would have otherwise been due during the period between the termination or expiry of the Support Term and the re-instatement of Support, or (ii) by re-purchasing the Licensed Materials and entering into a new Agreement regarding Support.

The termination of this Agreement by Vital-Sim is without prejudice to any other right or remedy that may be available to Vital-Sim.

Upon termination of this Agreement in accordance with Sections 0 or 0, You will immediately:

cease to use the Software; and

return all Hardware Locks and copies of the Licensed Materials to Vital-Sim, and provide Vital-Sim with a certificate signed by one of Your senior officers certifying such return and that no Hardware Locks or copies of the Licensed Materials, or any part of the Licensed Materials, in any form remain in Your possession or control.

General

Governing Law and Jurisdiction – This Agreement is a contract made under and shall be governed by and construed in accordance with the laws of the Province of Alberta and the federal laws of Canada applicable in the Province of Alberta. To the extent applicable, the parties expressly exclude the application of the United Nations Convention on Contracts for the International Sale of Goods. Each party irrevocably submits to the non-exclusive jurisdiction of the courts of competent jurisdiction in the Province of Alberta in respect of any action or proceeding relating in any way to this Agreement.

Audit – You shall permit and facilitate audits by Vital-Sim or its representatives of Your compliance with this Agreement as Vital-Sim deems reasonably necessary.

Notices – Any notices, consents or approval, including notices of address change, required to be sent under this Agreement shall be in writing and shall be deemed to have been given when mailed by first class mail (or courier) to the applicable address listed below.

Relationship – The relationship between You and Vital-Sim is that of an independent contractor. Nothing in this Agreement shall be construed to create a partnership, joint venture, employment or agency relationship between the parties.

Export – You acknowledge that the Licensed Materials may be subject to export and re-export restrictions under United States and Canadian export control laws and thus may not be exported or re-exported except in compliance with such laws.

Government Restrictions – Use of the Licensed Materials by any agency or department of the United States Government is restricted in accordance with FAR 12.212 for civilian agencies and DFAR Supplement 227.7207 for military agencies. The Licensed Materials are commercial computer software and commercial computer software documentation.

Waiver and Amendment – No waiver, modification or amendment of this Agreement shall be of any force or effect unless made in writing and signed by both parties. Any waiver by one party of any default by the other shall not affect or impair any right arising from any subsequent default.

Assignment – Upon giving notice to You, Vital-Sim may assign any or all of its rights and obligations under this Agreement to a third party. You may not assign any of Your rights or obligations under this Agreement to a third party without the prior written consent of Vital-Sim, which consent may be granted or withheld in Vital-Sim's sole discretion. This Agreement shall ensure to the benefit of and be binding upon the parties and their respective successors (including any successor by reason of amalgamation of any party) and permitted assigns.

Severability – If, in any jurisdiction, any provision of this Agreement or its application to any party or circumstance is restricted, prohibited or unenforceable, such provision shall, as to such jurisdiction, be ineffective only to the extent of such restriction, prohibition or unenforceability without invalidating the remaining provisions of this Agreement and without affecting the validity or enforceability of such provision in any other jurisdiction or without affecting its application to other parties or circumstances.

Survival – Sections 0, 0, 0, 0, 0 and 0 and any other provisions which by their nature survive the termination or expiry of this Agreement, survive any termination or expiry of this Agreement

EXHIBIT A - DEFINITIONS

"**Business Hours**" means 8:30 AM and 4:30 PM Mountain Time on any day, other than a Saturday, Sunday or public holiday in Alberta, Canada.

"**Defect**" means a reproducible (i) material defect in the Software, or (ii) failure of the Software to materially comply with the Documentation.

"**Documentation**" means any documentation (including electronic or online documentation) relating to the Software provided by Vital-Sim.

"**New Releases**" means software produced primarily to extend, alter or improve VSLS by providing additional functionality or performance enhancement while still retaining the original purpose of VSLS.

"**Patches**" means a temporary solution to, or workaround of, a Defect.

"**Software**" means the object code version of VSLS, Updates, Patches and New Releases.

"**Support Term**" means collectively the Initial Support Term and Renewal Support Term, unless earlier terminated in accordance with Section 0.

"**Updates**" means an update to VSLS that is designed to (i) improve the reliability of VSLS, (ii) remedy a Defect, or (iii) accommodate revisions to or new releases of Microsoft Corporation's Windows operating system.

"**Use**" means to store, load, install, execute and display

"**VSLS**" means Vital-Sim's Vital Signal Logic Simulator product and each compiler, accessory program or other similar tools or software for use with Vital-Sim's Vital Signal Logic Simulator product that You have paid to license from Vital-Sim.

Target Audience

This guide is intended for first time or new users of Vital-Sim. It is assumed that the reader is familiar with Railroad Signal Engineering practices and conventions. This guide is not intended to be complete documentation for Vital-Sim. There are many features and options that a user will learn about and become familiar with through ongoing use of the product.

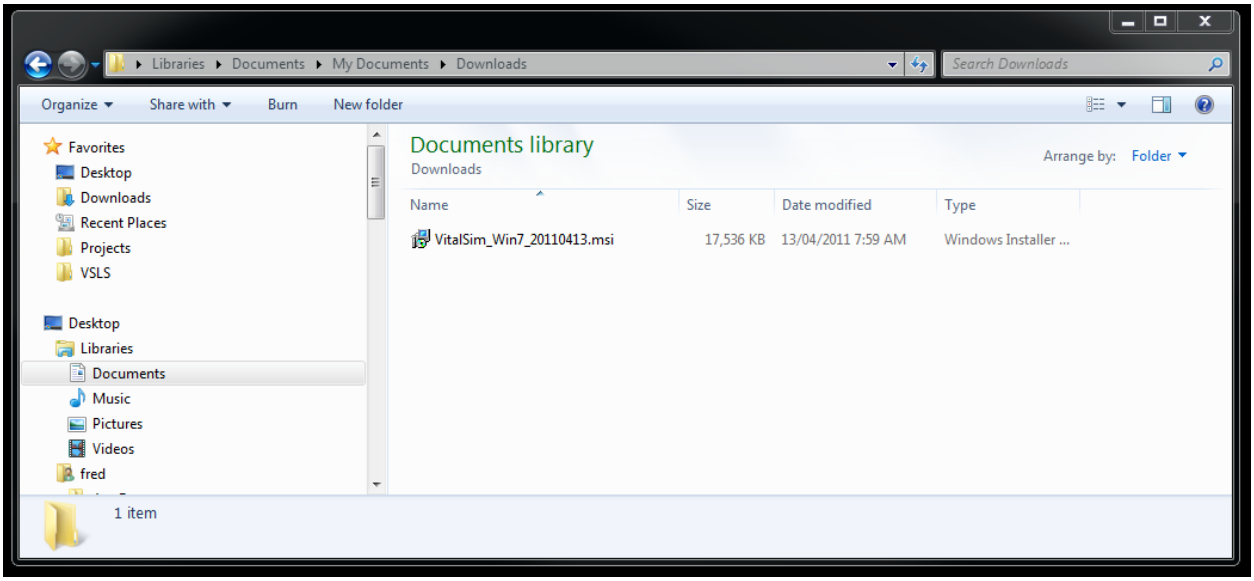
Please access the online Simulator Reference manual for more detail:
http://www.vital-sim.com/SimulatorManual/SimulatorMainFrame.html

Vital-Sim Installation

Prerequisites

1. System's Requirements
    a. Winows XP or Windows 7
    b. Microsoft Access (2000, 2003, 2007, 2010) or Access Runtime (2007, 2010)
2. SafeNet Sentinel Drivers for USB Hardware Lock
3. For upgrades, uninstall the previous version Vital-Sim using:
   Windows 7: "Start > Control Panel > Programs - Uninstall"
   Windows XP: "Start > Settings > Control Panel > Add or Remove Programs > Uninstall"

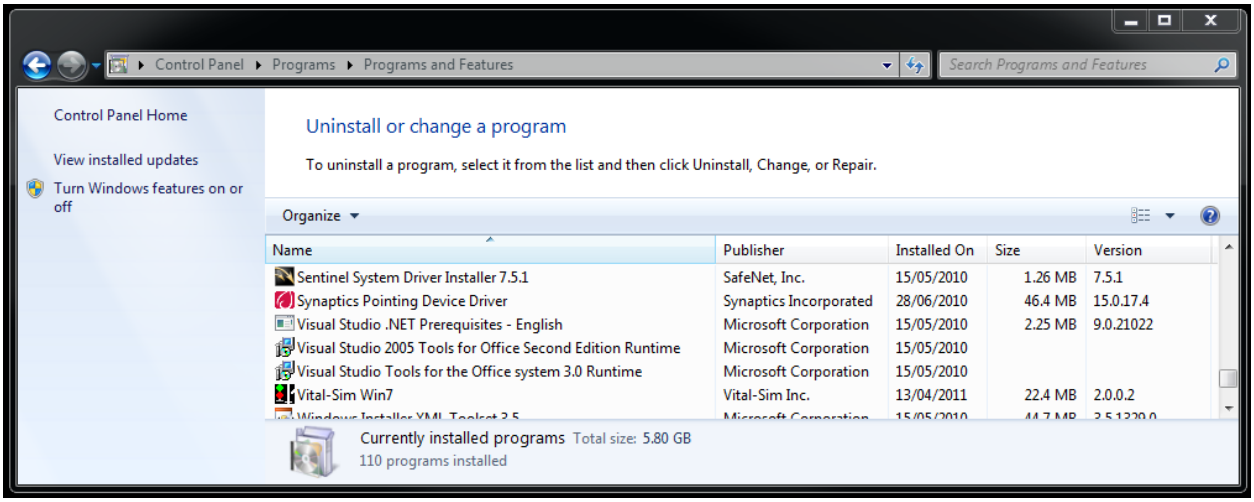
Recently, Vital-Sim has been made available to customers as a Windows Installer based .msi package. Simply double click or 'Right-click & Open' using Windows Installer.



The Vital-Sim installer creates file type associations, updates the registry, sets environment variables as required and places all components in designated directories.

The Vital-Sim file-type association icon:

You may verify the installation by using “Control Panel” >”Programs” >”Programs and Features”:
(the following screen capture shows the “Sentinel System Driver” and “Vital Sim Win7” software is installed)

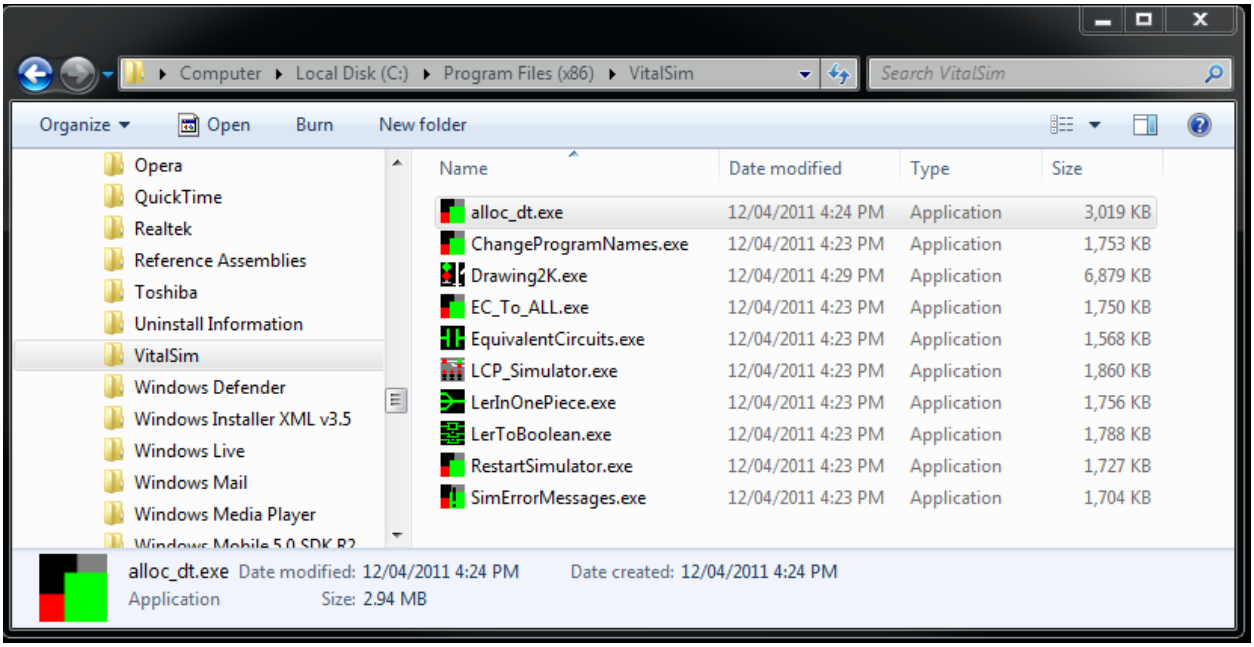


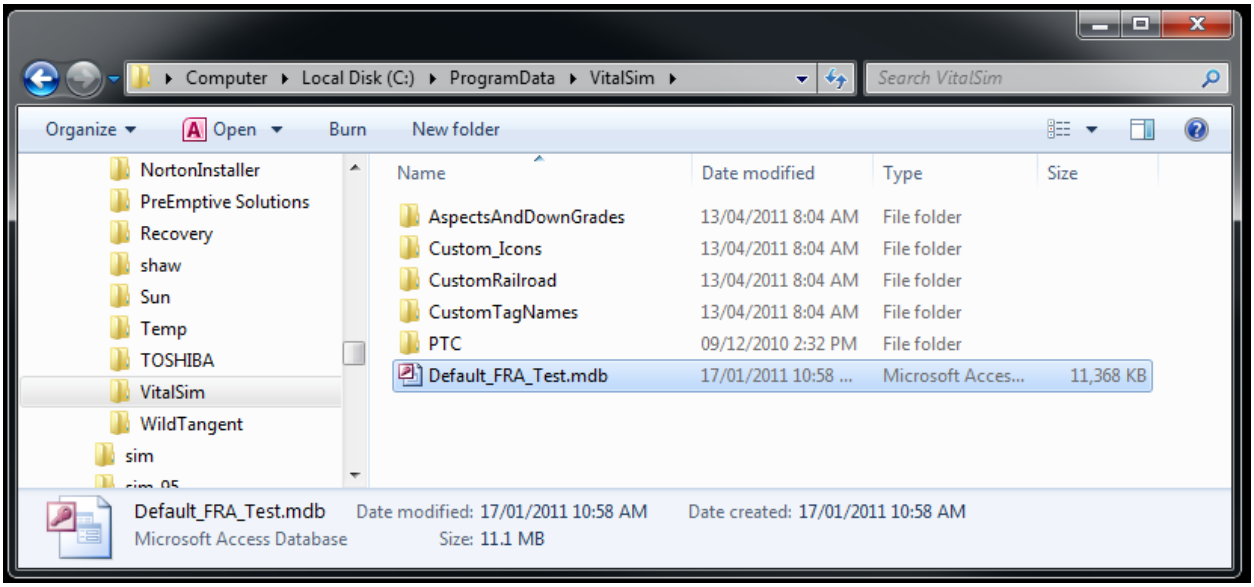
Vital-Sim Application Folders

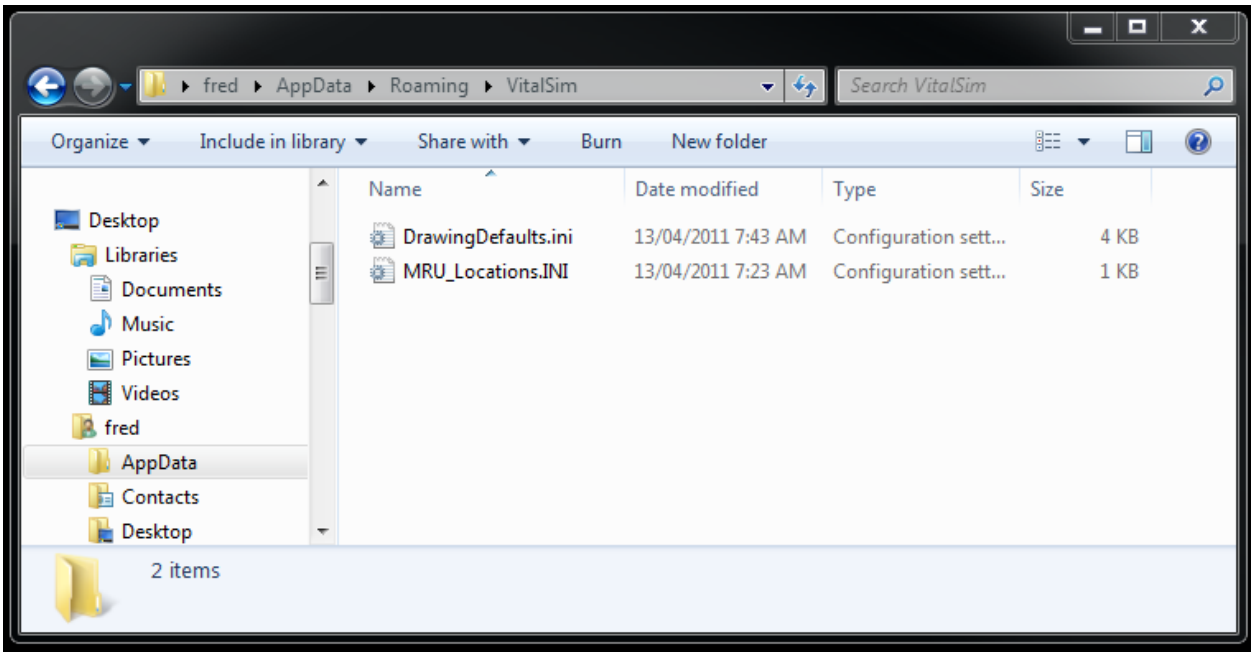
For Windows XP users, all Vital-Sim components and component subdirectories are installed in:

C:\sim_95\

In Windows 7, Vital-Sim components are installed in several designated folders to conform with current Microsoft application standards (i.e., Program Files, ProgramData, user specific Appdata)







Vital-Sim Project Folder

New Vital-Sim users will need to create a folder or folders for their Vital-Sim applications; the following examples in this quick start guide use a project folder named ‘C:\VSLS_Projects”.

Creating a Vital-Sim Project:

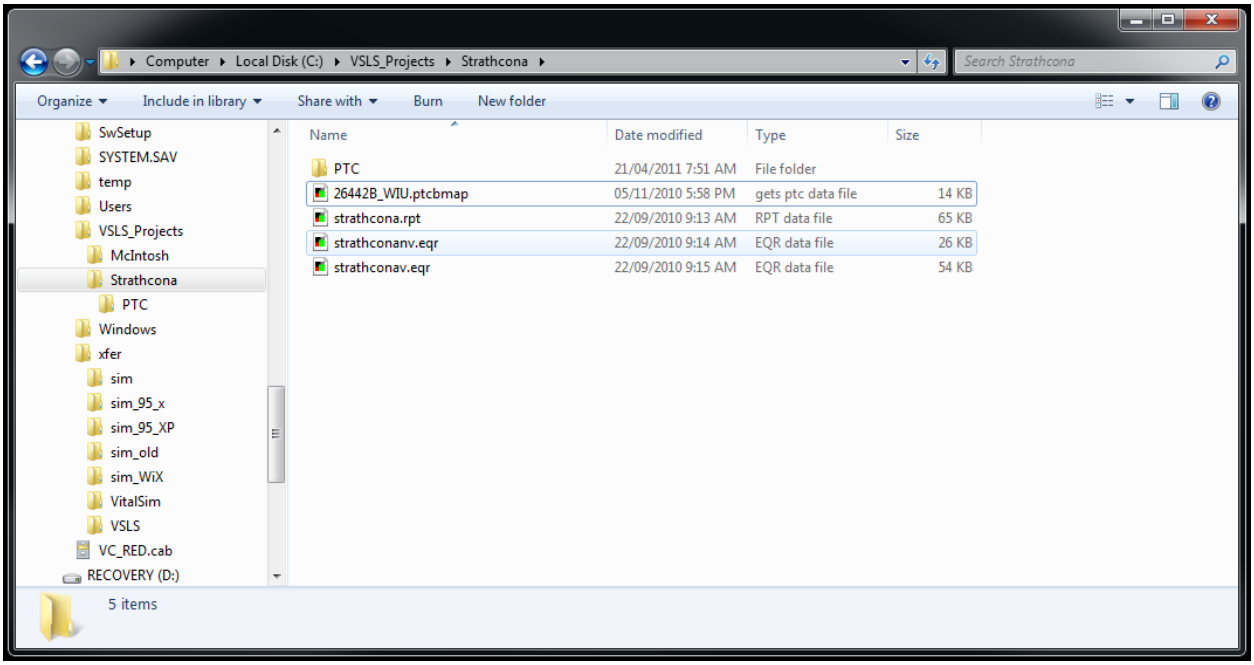
Basic ACE ElectroLogIXS PTC Example – Strathcona Location

Create a new project folder (e.g., C:\VSLS_Projects\Strathcona)

Copy or ensure that the ACE generated .rpt and .eqr files are present in your project folder. It is recommended that the ACE validator is run before attempting to create or run a Vital-Sim project.

Starting Vital-Sim

Double click or "Right-click > Open" any ".rpt" or ".eqr" file to start-up Vital-Sim for the location.

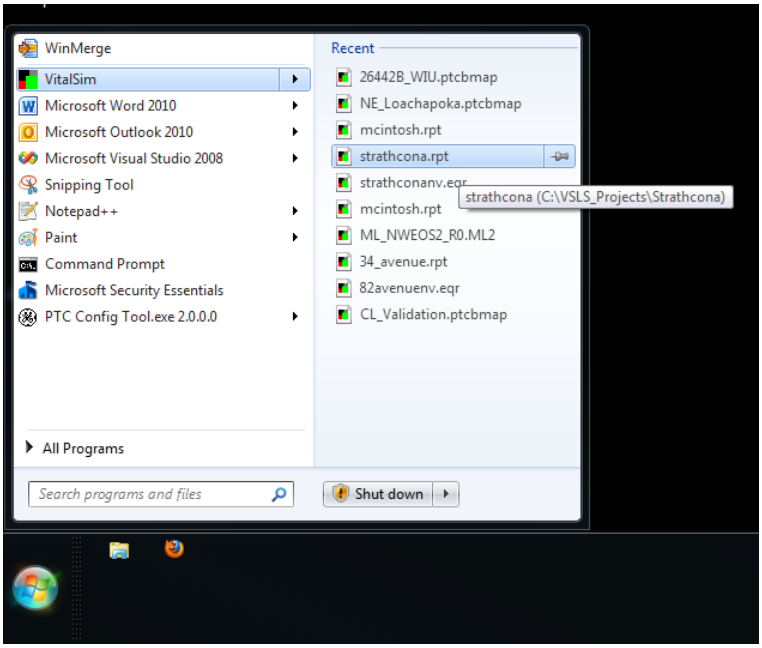


Supported File Types

The following file types are recognized and used as input by Vital-Sim:

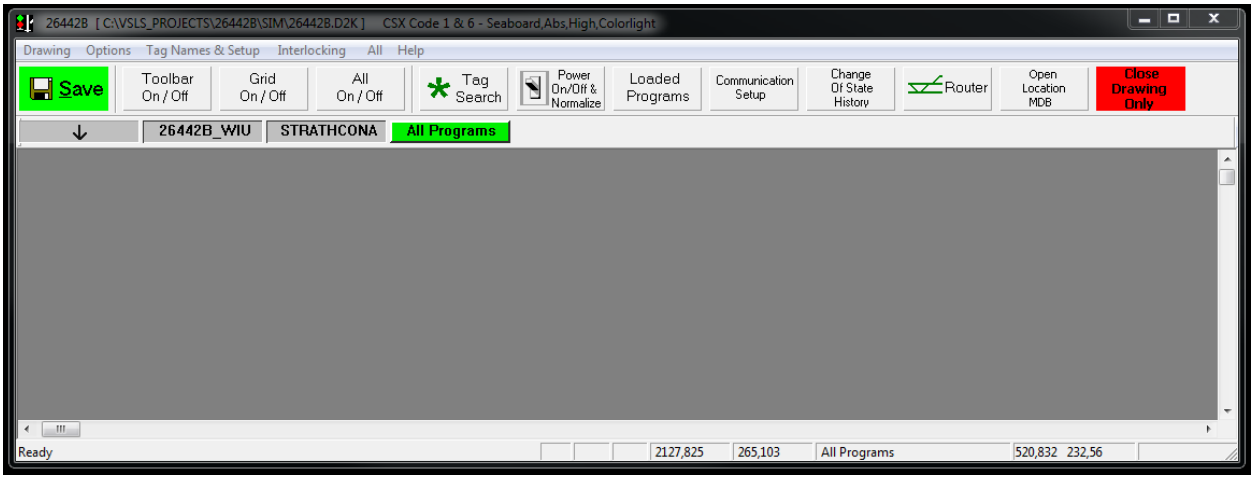
Purchased Option	Recognized file type (suffix)
GE/Harmon ACE/ElectologIXS	.rpt, .eqr, .ler
GE/Harmon DOS VHLC	.all, .ler
GE/Harmon ElectroCode IV	Bitmap.sel
GE PTC	.ptcbmap
Ansaldo Microlok I	.mll, gen
Ansaldo Microlok II	.ml2, .gn2, .g2k
Ansaldo MicroTRAX	.trx
Alstom VPI	.vpc, .csi

Alternatively, Vital-Sim can be started from the Windows “Start” menu; recently opened projects can be quickly accessed this way:

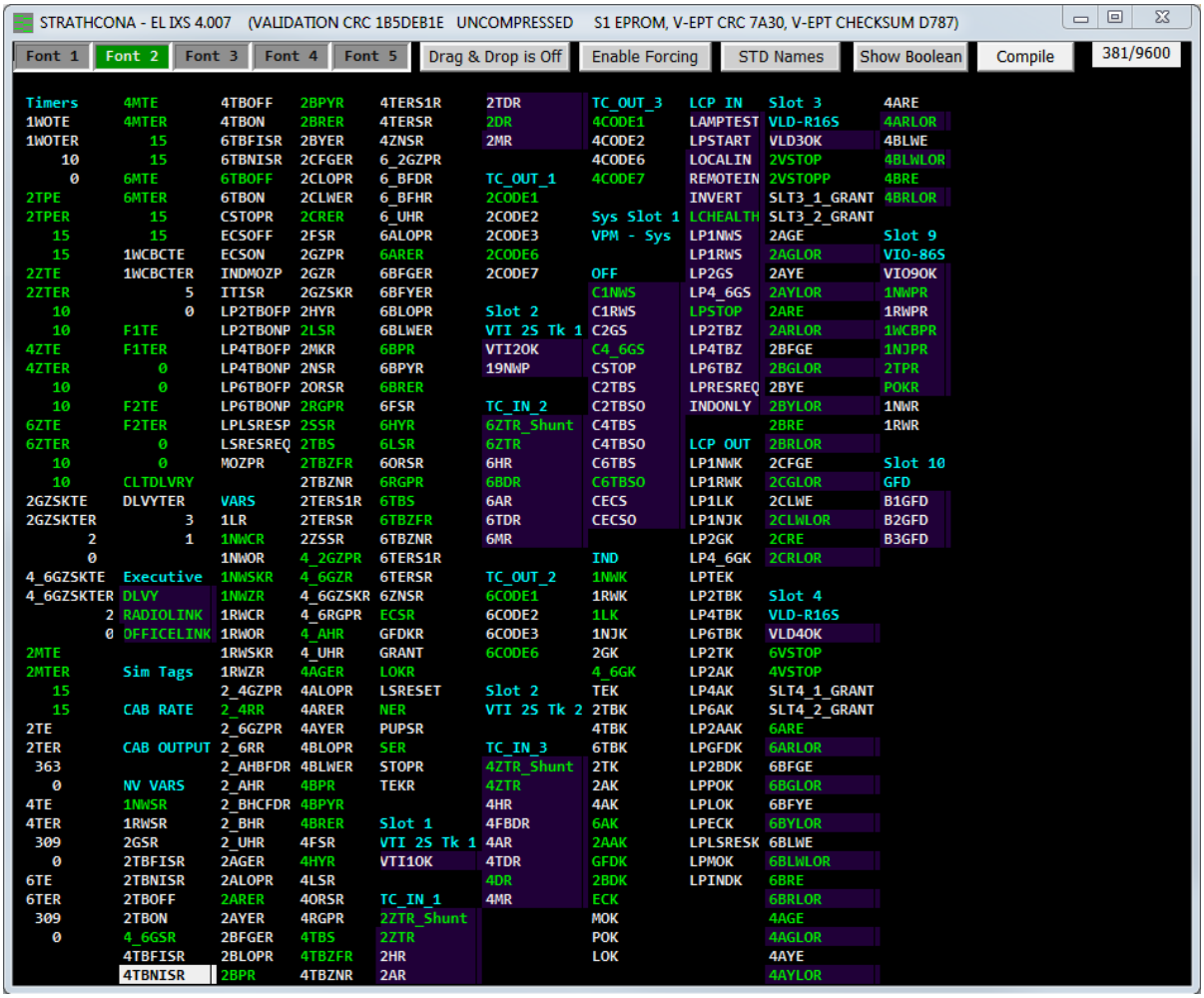


Upon Vital-Sim startup, a number of windows will be created; most of which are minimized or run in the background.

The main Vital-Sim window is the Track Plan window which is empty for a new project:



A taglist window is created for each vital and NV controller found in the project folder



The taglist windows are populated with the statuses and I/O tags found for each controller. (extracted from the .rpt file in the case of ElectrologIXS)

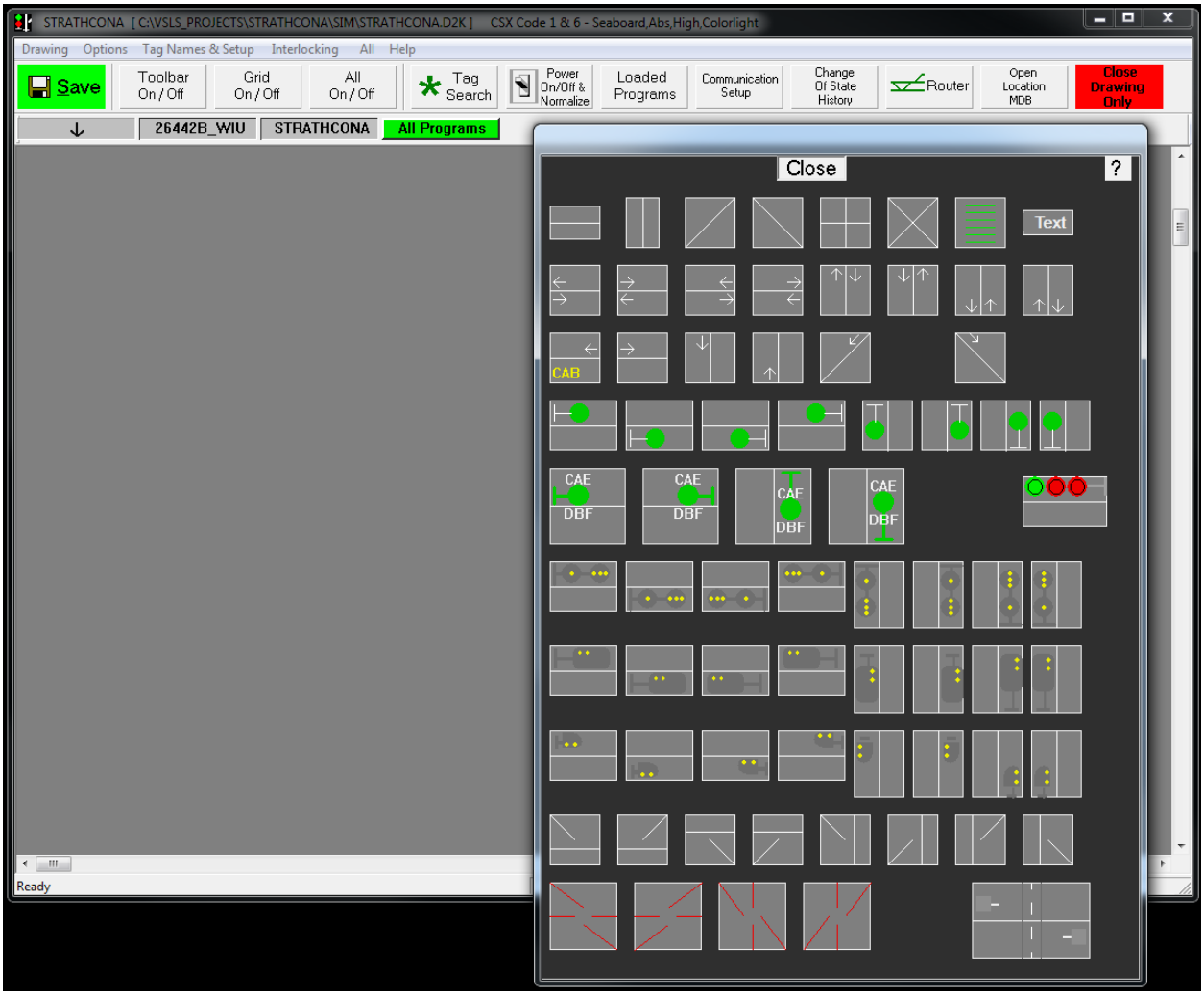
(Note: recent versions of Vital-Sim highlight input tags with indigo background)

Building a Track Plan

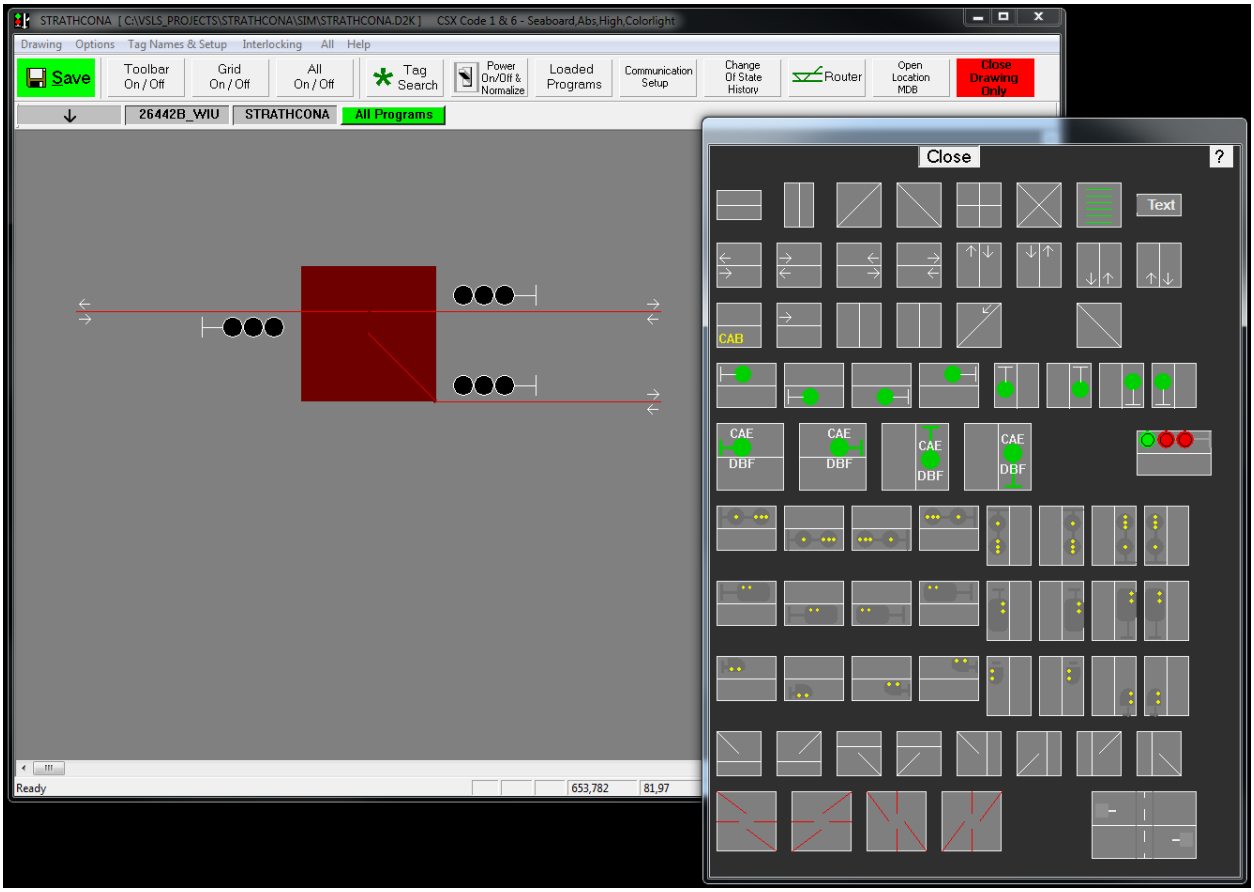
Ensure that Vital-Sim is in “Edit” Mode to create a track plan.
(on start-up, Vital-Sim is by default in “edit” mode where the cursor is the conventional arrow pointer vs. the hand pointer in “run” mode.

In summary, the process to create a track plan involves:

- “Drag and Drop” of elements from the Vital-Sim ToolBar onto the TrackPlan Window
- Each element is sized and positioned to represent your location.
- Right Click each element to open a setup dialog
  (to set attributes and I/O tag associations)



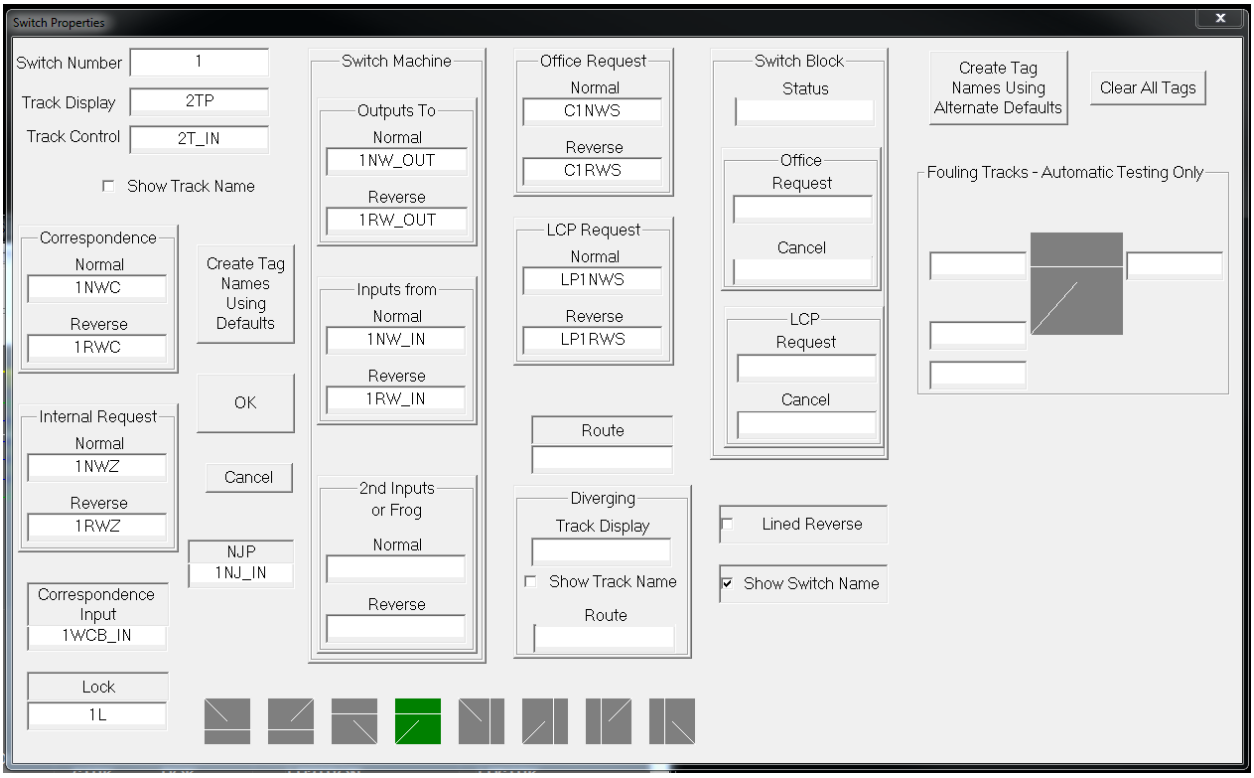
A simple example of an End of Siding track plan consisting of 3 track circuits, 3 signals and 1 switch:



The following sections describe the setup and configuration of these elements to create a useful location simulation.

Switches (Power)

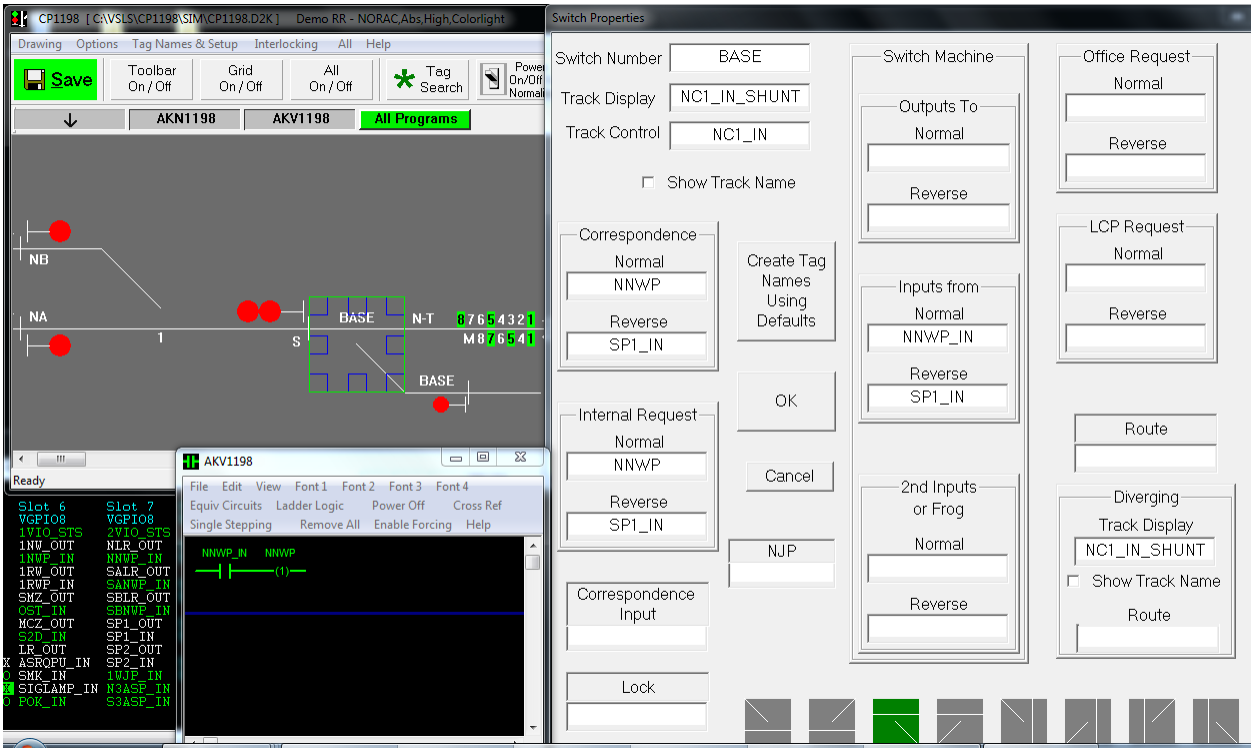
See the following typical power switch configuration using the switch properties dialog as a guide:



(fields required may vary depending on actual location)

Switches (Manual)

Manual switches can also be configured as demonstrated by the following example:

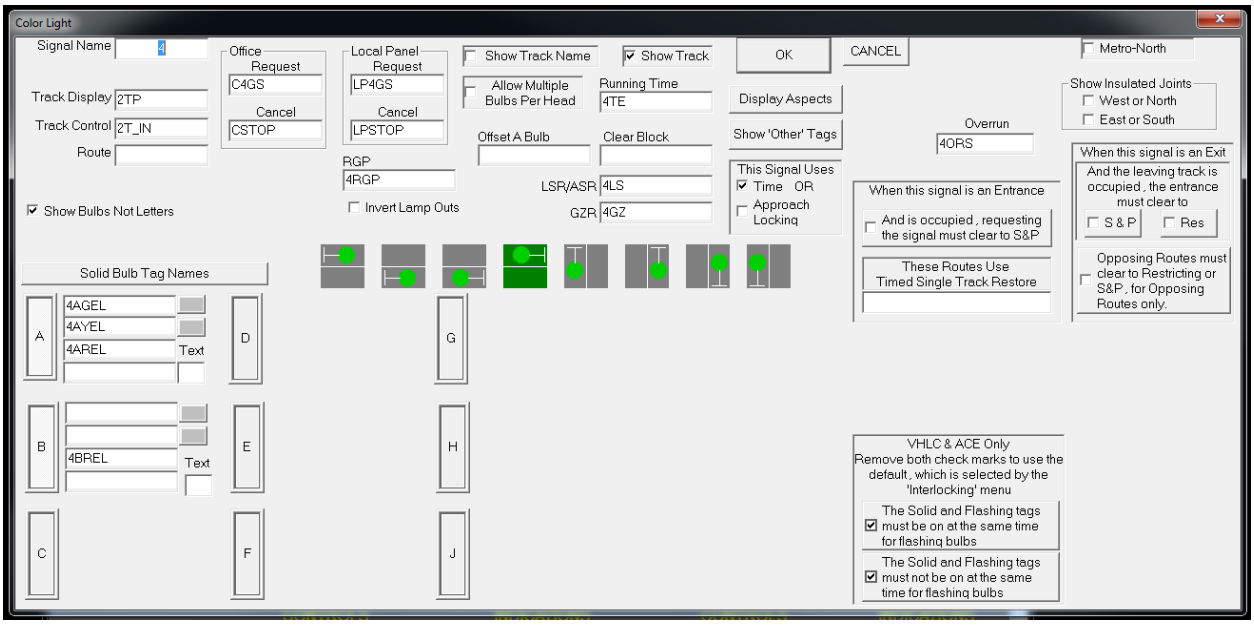


Note the usage of inputs for switch position (NNWP_IN, SP1_IN) and the NNWP repeater for this particular location.

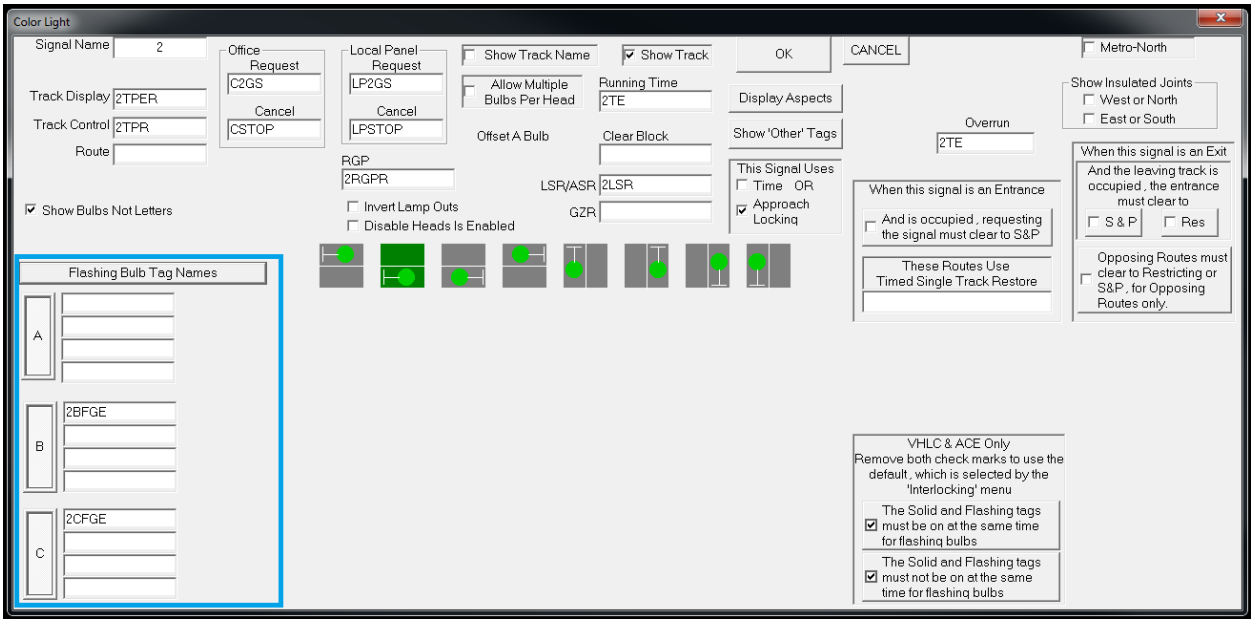
Color Light Signals

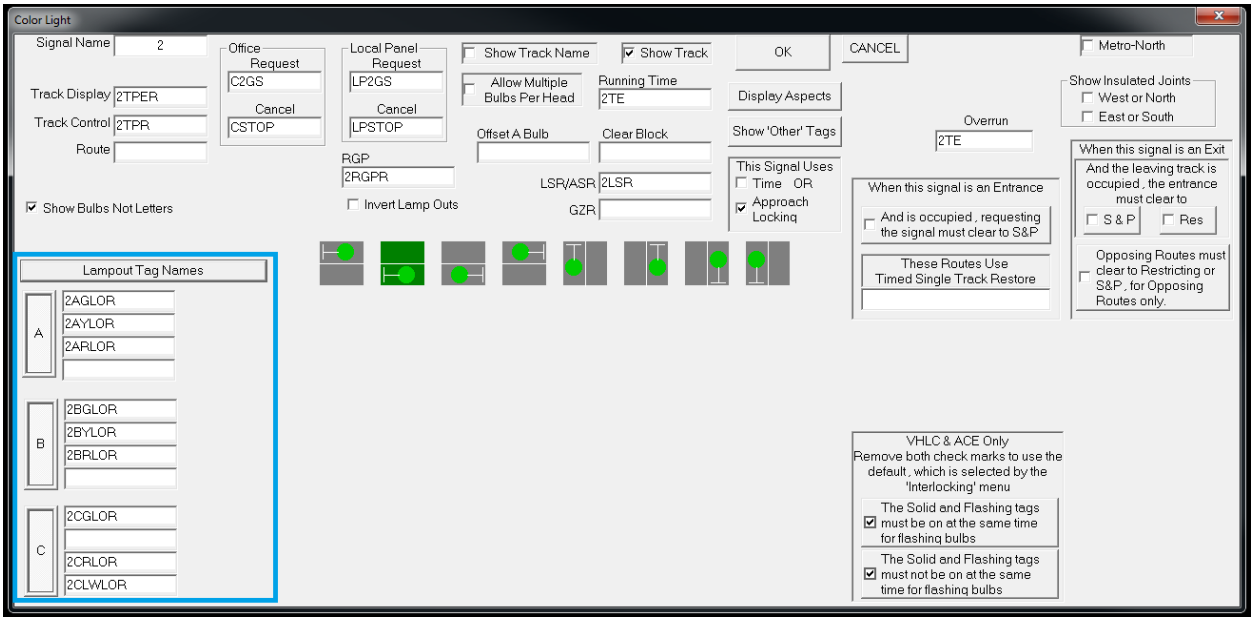
Select Number of Heads by clicking A, B or C Box.

See the screen capture as an example of the tags required for setup of the color light signal.
Enter Solid Bulb tags associated with Color Light lamps:



To enter Flashing and LampOut tags, click the “Solid Bulb Tag Names” button above the A head input boxes to cycle between the entry fields for Solid, Flashing and Lampout:

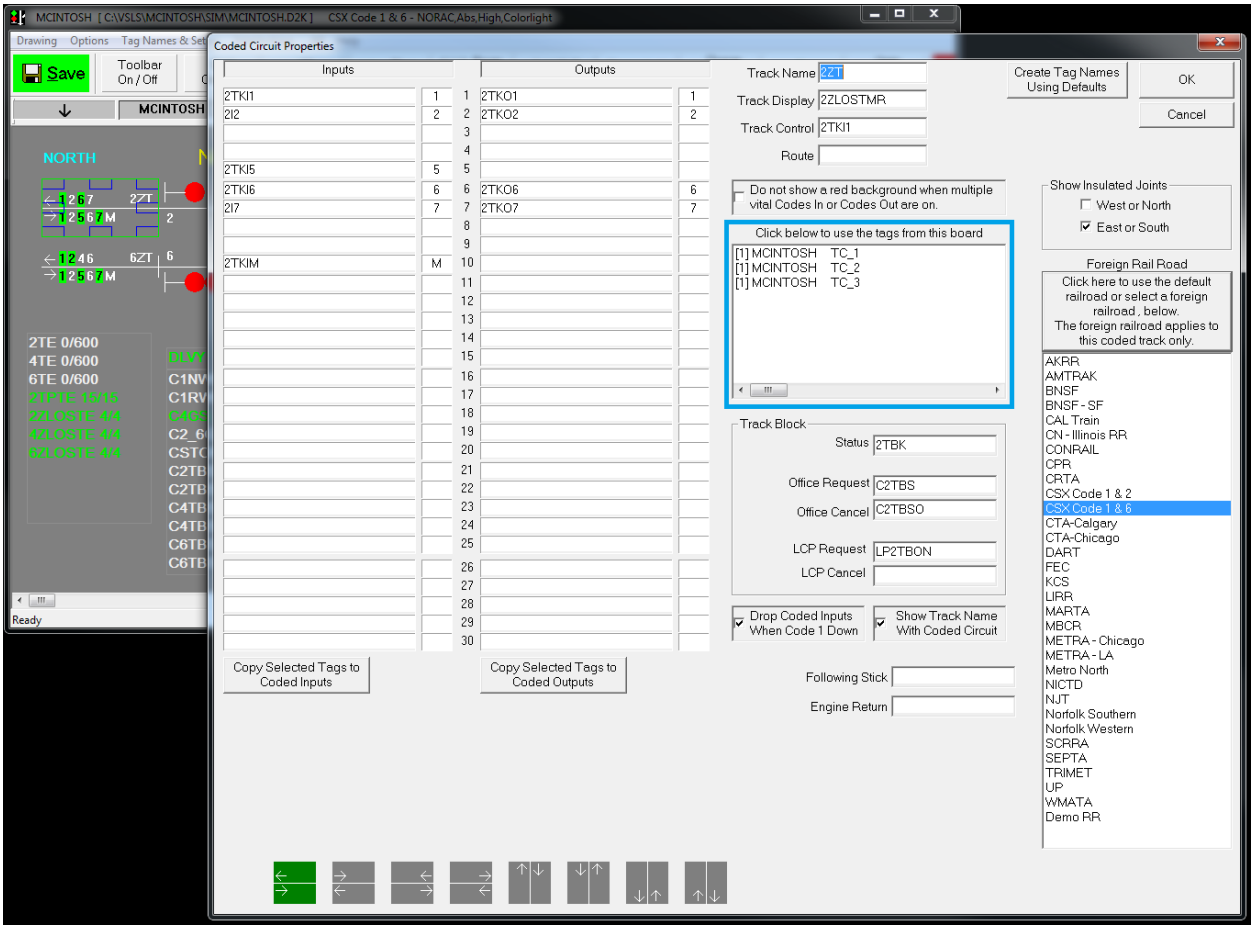



Color Light
Signal Name
2
Office
Request
C2GS
Cancel
CSTOP
Local Panel
Request
LP2GS
Cancel
LPSTOP
Show Track Name
Show Track
OK
CANCEL
Metro-North
Track Display
2TPER
Track Control
2TPR
Route
Allow Multiple Bulbs Per Head
Running Time
2TE
Display Aspects
Show Insulated Joints
West or North
East or South
Overrun
2TE
Show 'Other' Tags
Offset A Bulb
Clear Block
RGP
2RGPR
This Signal Uses
Time OR
Approach Locking
When this signal is an Exit
And the leaving track is occupied, the entrance must clear to
S & P
Res
When this signal is an Entrance
And is occupied, requesting the signal must clear to S&P
LSR/ASR
2LSR
GZR
Show Bulbs Not Letters
Invert Lamp Outs
These Routes Use Timed Single Track Restore
Opposing Routes must clear to Restricting or S&P, for Opposing Routes only.
Lampout Tag Names
A
2AGLOR
2AYLOR
2ARLOR
B
2BGLOR
2BYLOR
2BRLOR
C
2CGLOR
2CRLOR
2CLWLOR
VHLC & ACE Only
Remove both check marks to use the default, which is selected by the 'Interlocking' menu
The Solid and Flashing tags must be on at the same time for flashing bulbs
The Solid and Flashing tags must not be on at the same time for flashing bulbs

Track Circuits

See the example screen as a guide to enter tag names .

(try the handy time saver “Click here to use the tags from this board” -highlighted in blue box)



Input and Output Tags should be set depending on the specific track circuit.

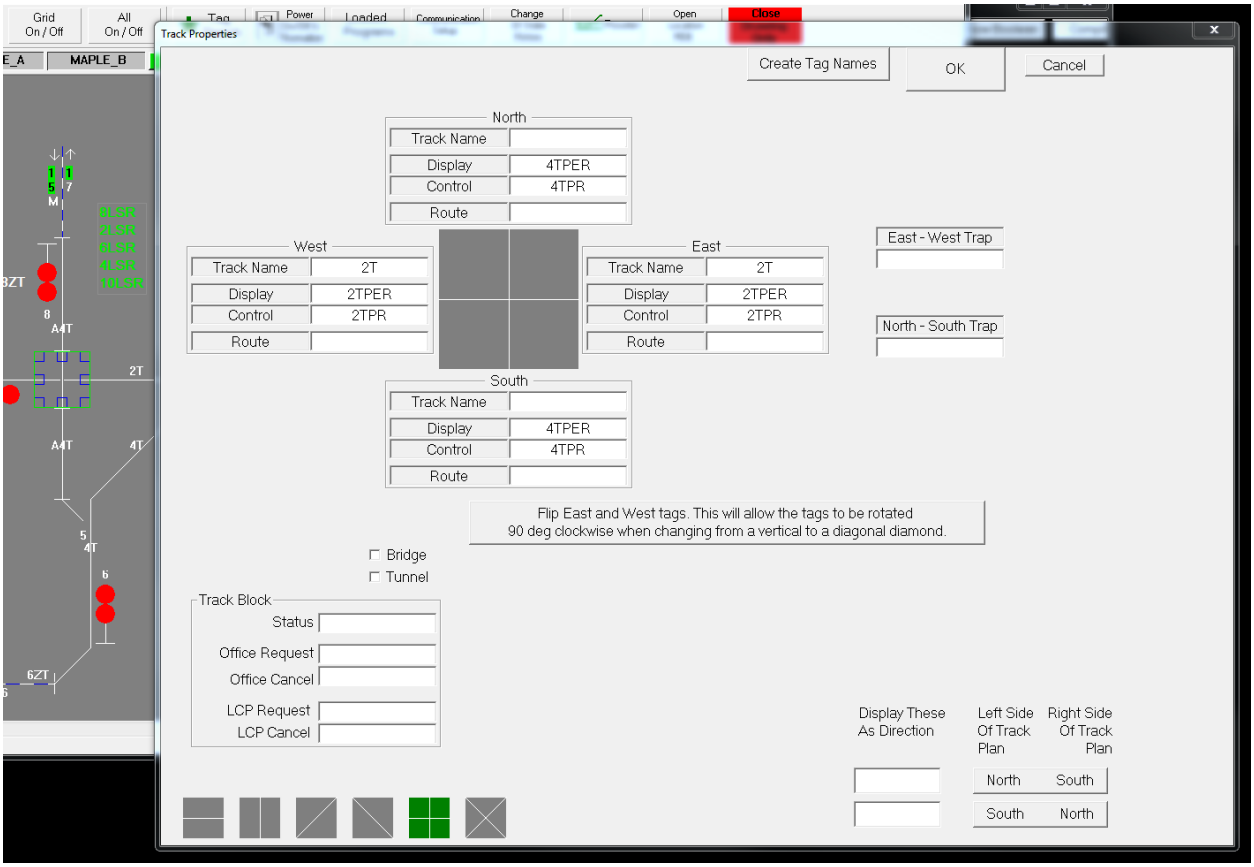
Abbreviated code values are displayed on the track plan (e.g.,1 2 5 6 7 M)

Defaults for the abbreviated values are determined by selected railroad.

(Railroad defaults are configured in **C:\ProgramData\VitalSim\CustomTagNames\CodedTracks.ini**)

Crossings

See following example.



Track Display and Track Control

Each of the previously listed track plan elements has two setup fields of great importance:

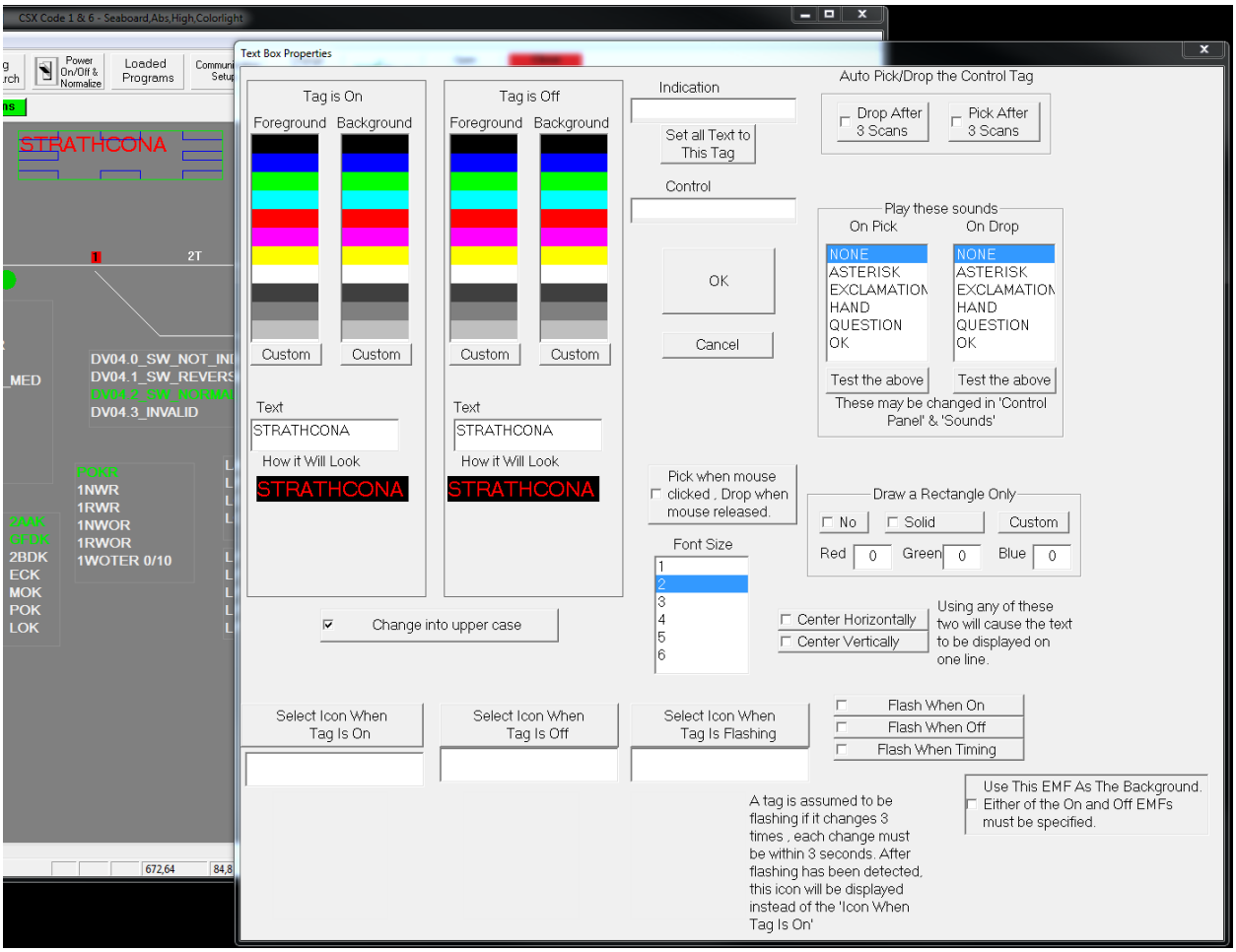
- **Track Display**: used to indicate that a track is occupied (shunted) or timer is running. When dropped, track is displayed lined red.
- **Track Control**: Input from track used by Vital-Sim used to control presence of train. When testing in Vital-Sim, the user can click on the track in “Run Mode”; this causes the input value to toogle (pick or drop)

The previous screen captures provide some typical examples of how these fields are set; your actual situation may vary.

Text Boxes

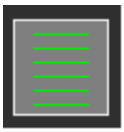
Text Boxes are a mechanism to add labels and graphic elements to a track plan. To create a Text Box drag the icon from the ToolBar to the track plan:

Right click on the empty box to enter text and associated attributes:

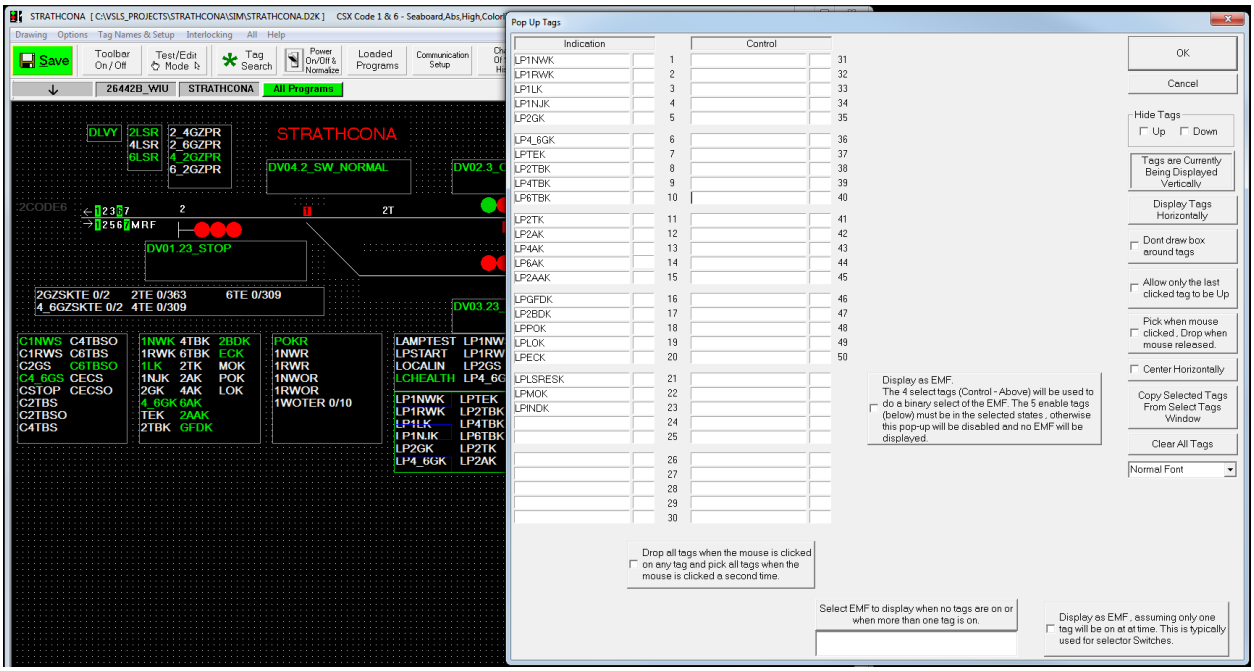


PopUp Tag Boxes

PopUp Tag Boxes provide a convenient method for making heavy use tags visible and “settable” within the trackplan work space. To create a PopUp Tag Box drag the icon from the ToolBar to the track plan:



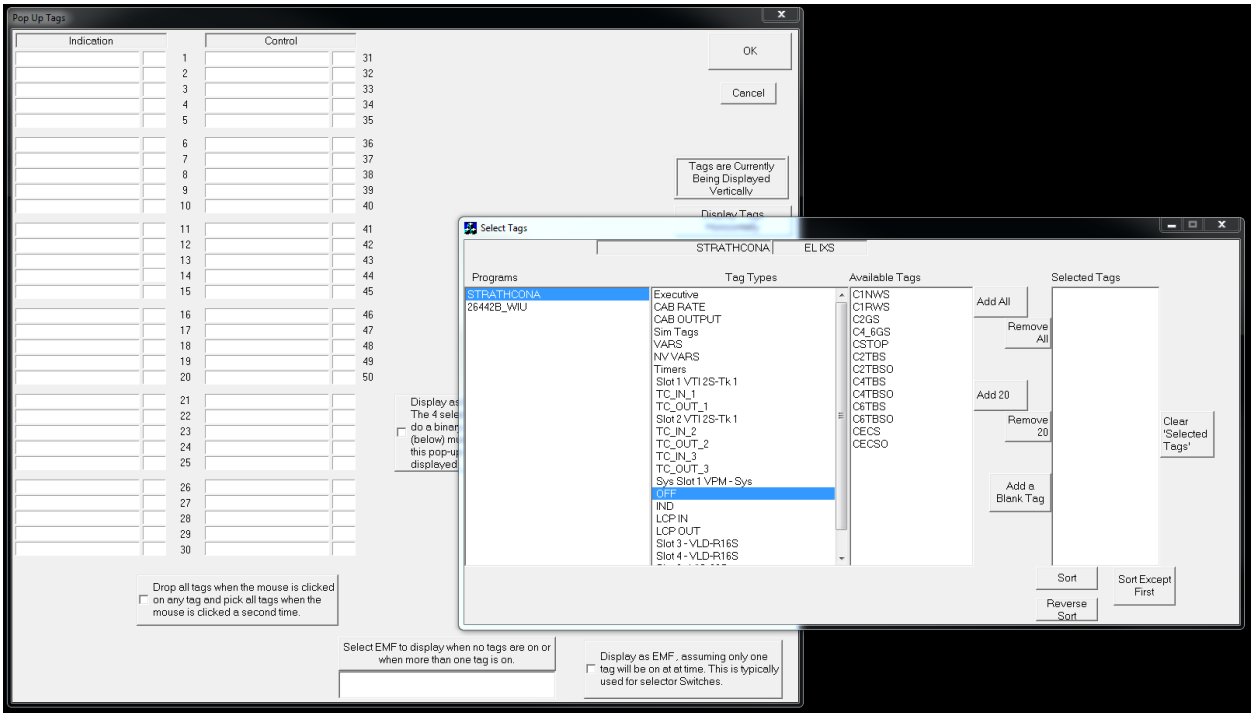
Right click to add tags using the dialog:



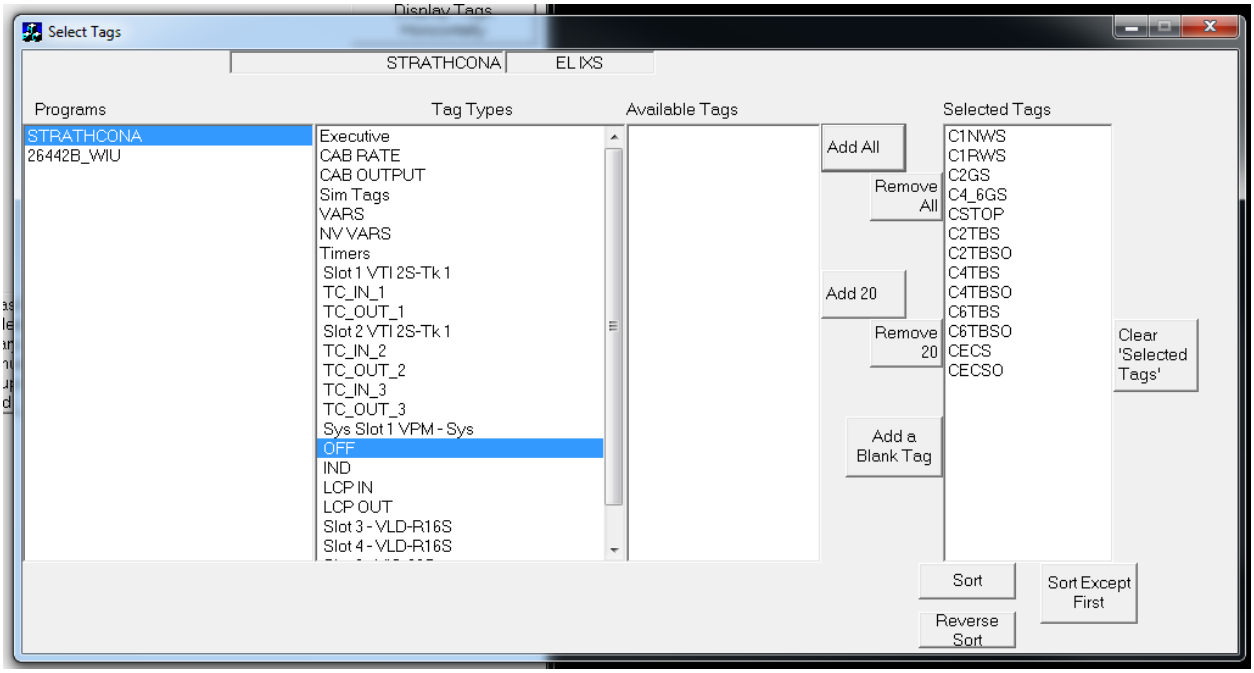
Recent versions of Vital-Sim now provide the following new options for PopUp Tag Boxes:

- Selectable font size (Normal, Small, Medium, Large)
- Hide Tags (to only show tags that are either up or down – useful to monitor groups of tags that normally in a default state but should be highlighted when not in the default state.)

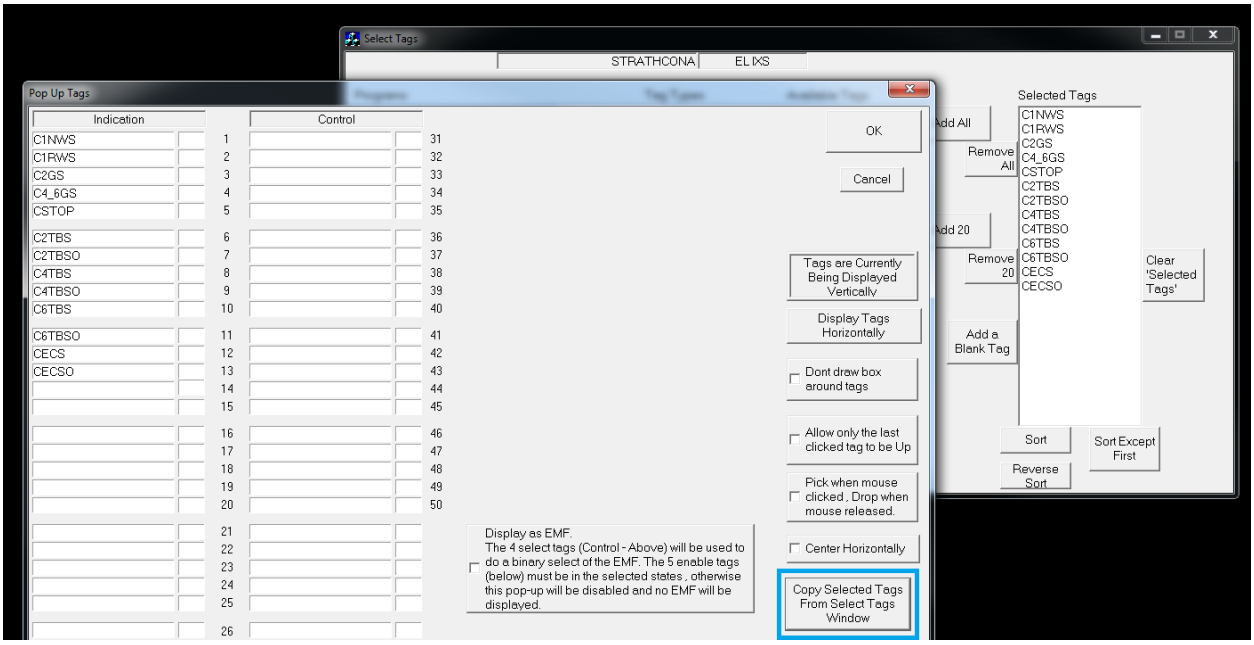
Groups of tags can be added quickly by using the select tags dialog:



Move tags from the “Available Tags” list to the “Selected Tags” list; Use “Add All” or “Add 20” to save time:



To transfer the selected tags to the PopUp Tags setup box push the “Copy Selected Tags from Select Tag Window Button” (lower right side of the “PopUp Tags” dialog box)

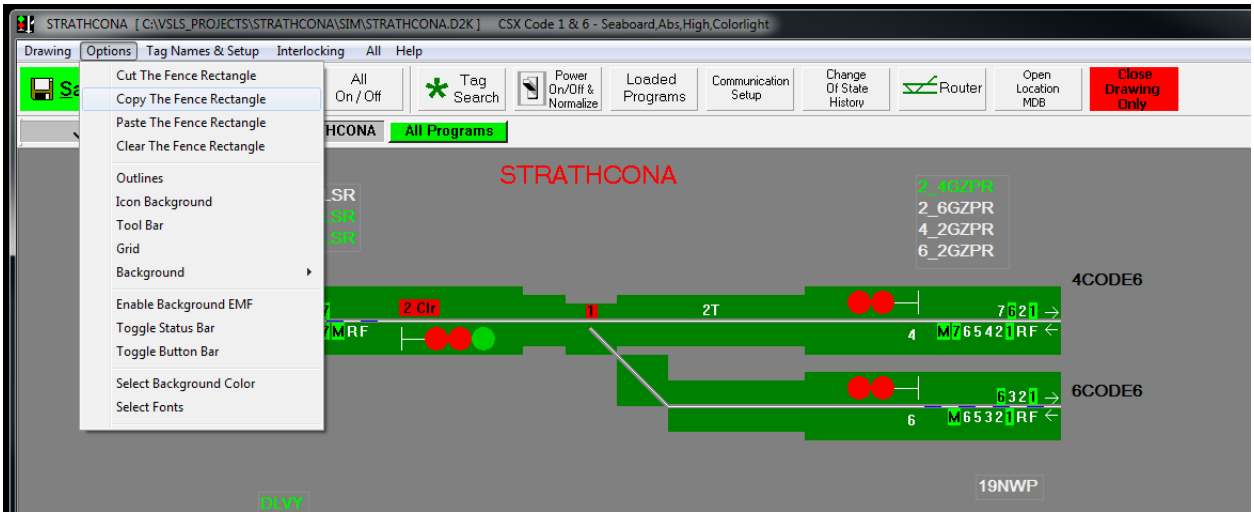

Select Tags
STRATHCONA
EL IXS
Pop Up Tags
Indication
Control
C1NWS
C1RWS
C2GS
C4_6GS
CSTOP
C2TBS
C2TBSO
C4TBS
C4TBSO
C6TBS
C6TBSO
CECS
CECSO
OK
Cancel
Tags are Currently Being Displayed Vertically
Display Tags Horizontally
Dont draw box around tags
Allow only the last clicked tag to be Up
Pick when mouse clicked , Drop when mouse released.
Center Horizontally
Copy Selected Tags From Select Tags Window
Display as EMF.
The 4 select tags (Control - Above) will be used to do a binary select of the EMF. The 5 enable tags (below) must be in the selected states , otherwise this pop-up will be disabled and no EMF will be displayed.
Add All
Remove All
Add 20
Remove 20
Add a Blank Tag
Selected Tags
Clear 'Selected Tags'
Sort
Sort Except First
Reverse Sort

Copy, Cut, Paste, Delete and Move

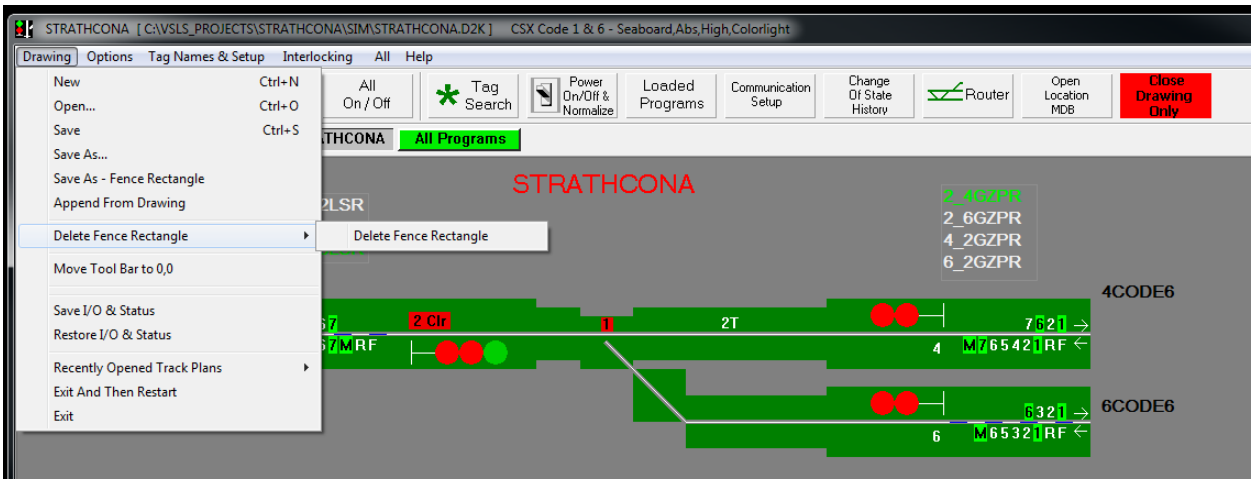
Multiple elements on the track plan can be selected to copy, cut, paste, delete or move.

To select, hold down the shift key and then click and drag the mouse to select items for copy/cut. Continue holding the shift key down and the click on individual items.

See Track Plan drop down menu: “Options” -> “Cut/Copy/Paste/Clear The Fence Rectangle”:



To Delete select : “Drawing” > ”Delete Fence Rectangle” > “Delete Fence Rectangle”



To drag the selected group, release the shift key then click on highlight items and drag as a group.

Using Vital-Sim

Enter Run mode (Hand Icon) by double clicking anywhere on the trackplan back ground.
(Note: To return back to edit mode double click on the track plan background)

Simulating Train Movements – Shunting Tracks

In "run" mode, each of the track plan elements with a track line can be shunted/un-shunted by simply clicking on the track element. A shunted track is shown with a red line; un-shunted with white.
(Note: An un-shunted track with a LOS timer running will show as red until the timer expires)

Flyover Status

In "run" mode, each of the track plan elements will present a "Flyover" indication of statuses and timers associated with the element. Input statuses and timers can be picked or dropped from the flyover status box.

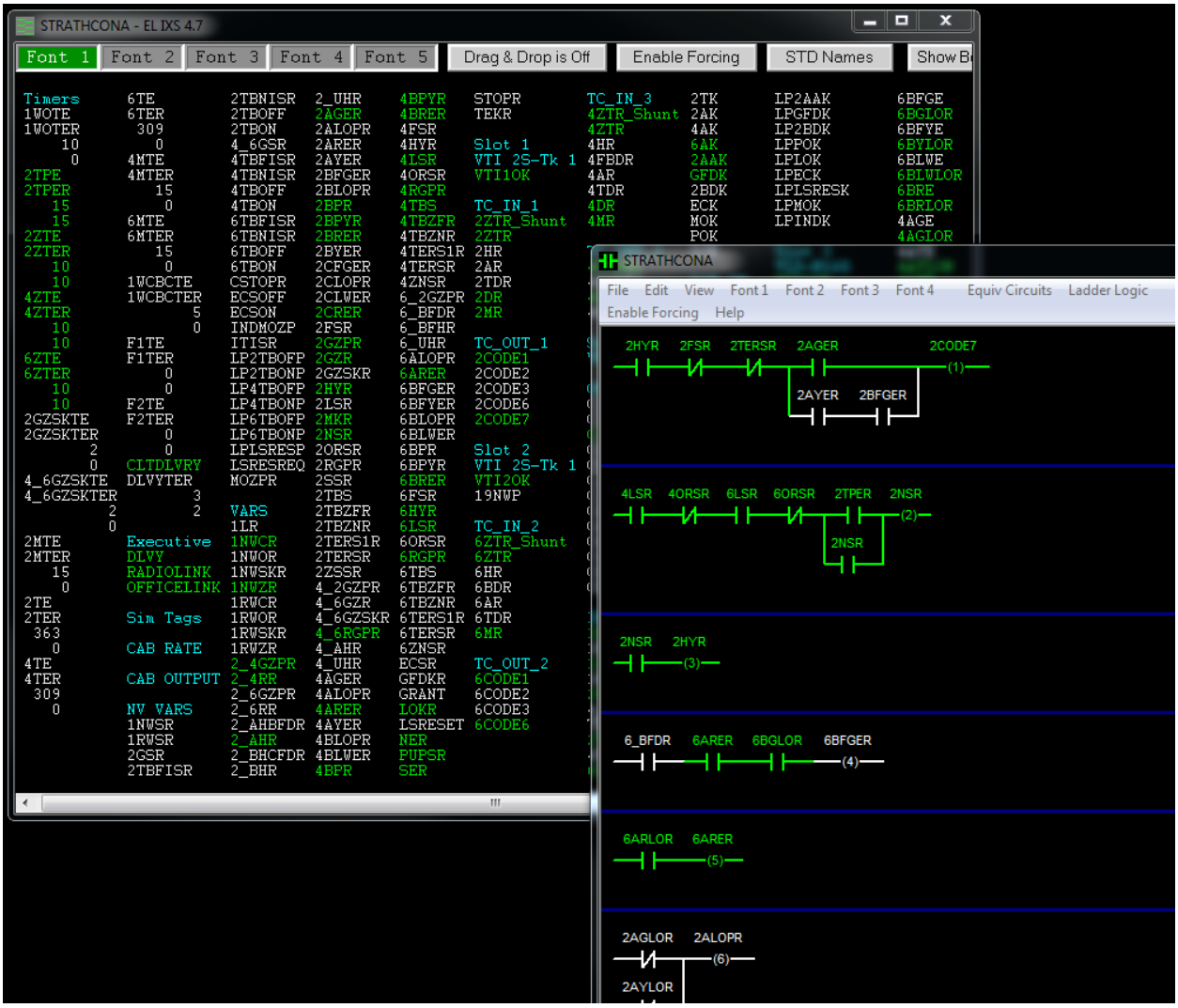
The following is an example flyover status display for a 2 headed color light signal:

Analyzing Your Application – Taglist and Equivalent Circuits Windows

One of the most effective features provided in Vital-Sim is the ability to analyze the state of an application – to identify statuses and quickly navigate through their associated equations.

To view the equation associated with a status “Right-Click” on the tag .(tag may be in the Taglist Window, PopUp Taglist, in a flyover status box or a tag in an equivalent circuit.

Example Taglist window and associated Equivalent Circuit window:



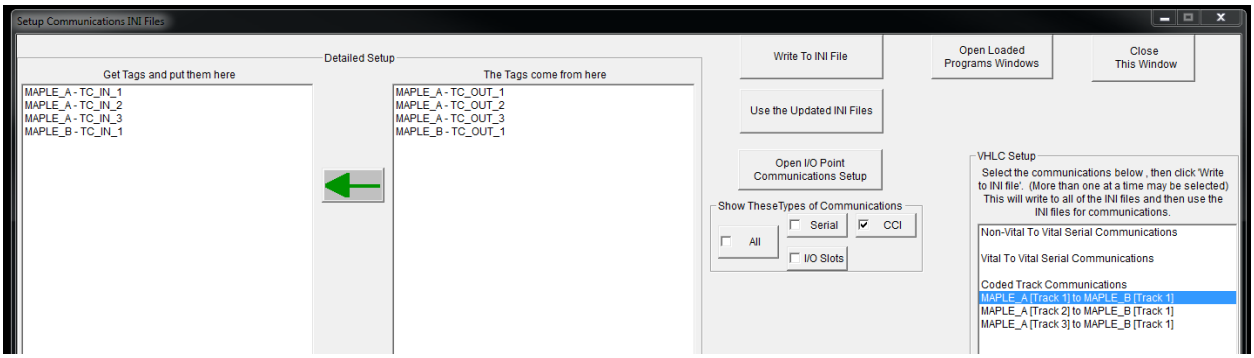
Multi-Controller Locations – Communications Setup

Vital-Sim provides that ability to simulate locations/configurations with multiple vital logic processors. An essential requirement of these simulations is the setup/definition of the communication links between the different processors. Depending on your location these communications links can a combination of 1 or more of the following:

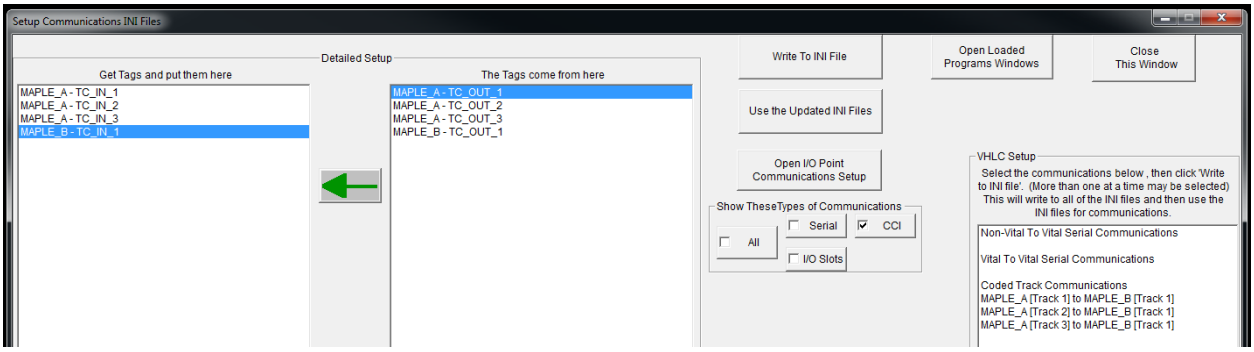
- Track circuits
- I/O Slots
- Serial Links
- Point-to-point (wires)
- GE Harmon VHLC (Vital –NV)

To configure communications for your location, select “Communications Setup” from the Track Plan window Ribbon bar.

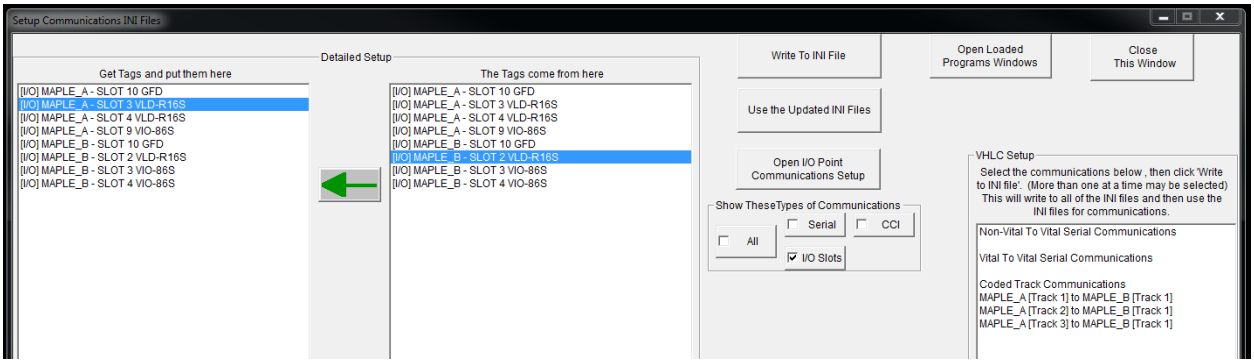
Track Circuit Communications Setup – Method 1



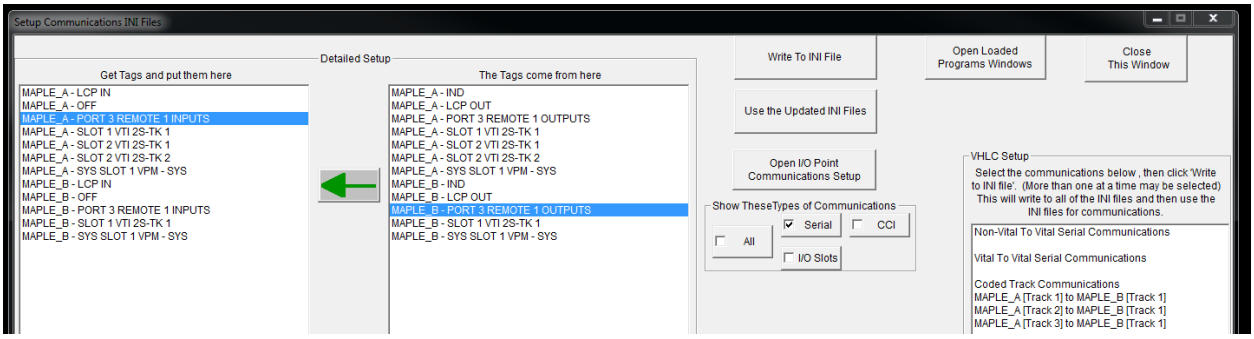
Track Circuit Communications Setup – Method 2



I/O Slot Communications Setup



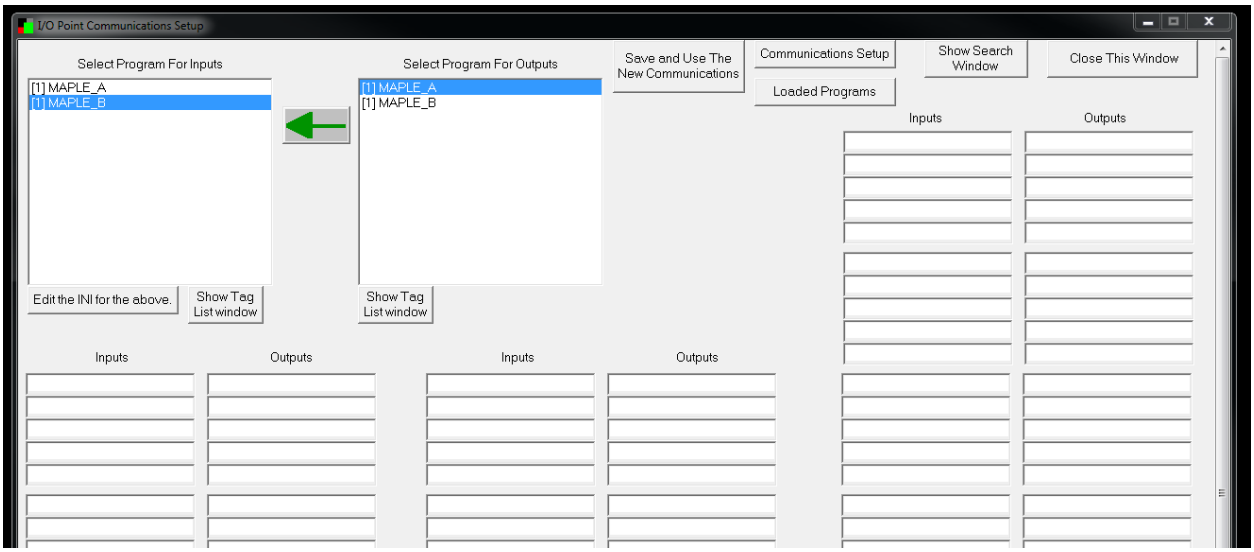
Serial Communications Setup



Point-to-Point Communications Setup

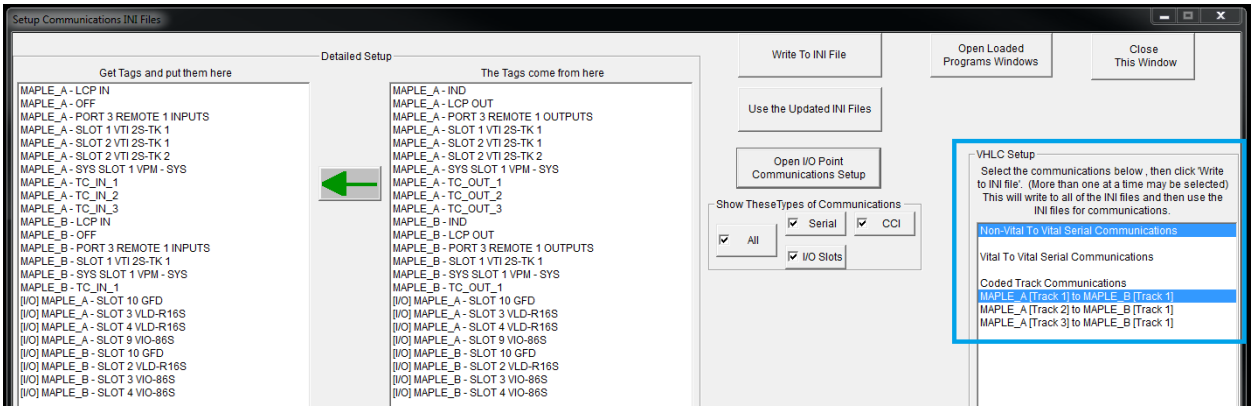
From the lists provided, select an Output program and an Input program; then enter Input and Output tag pairs. (Suggestion: Use the TagList window Drag & Drop feature to quickly select and enter tags on the I/O Point Communications Setup).

Click “Save and Use The New Communications” button to save and apply changes.



VHLC Communications Setup

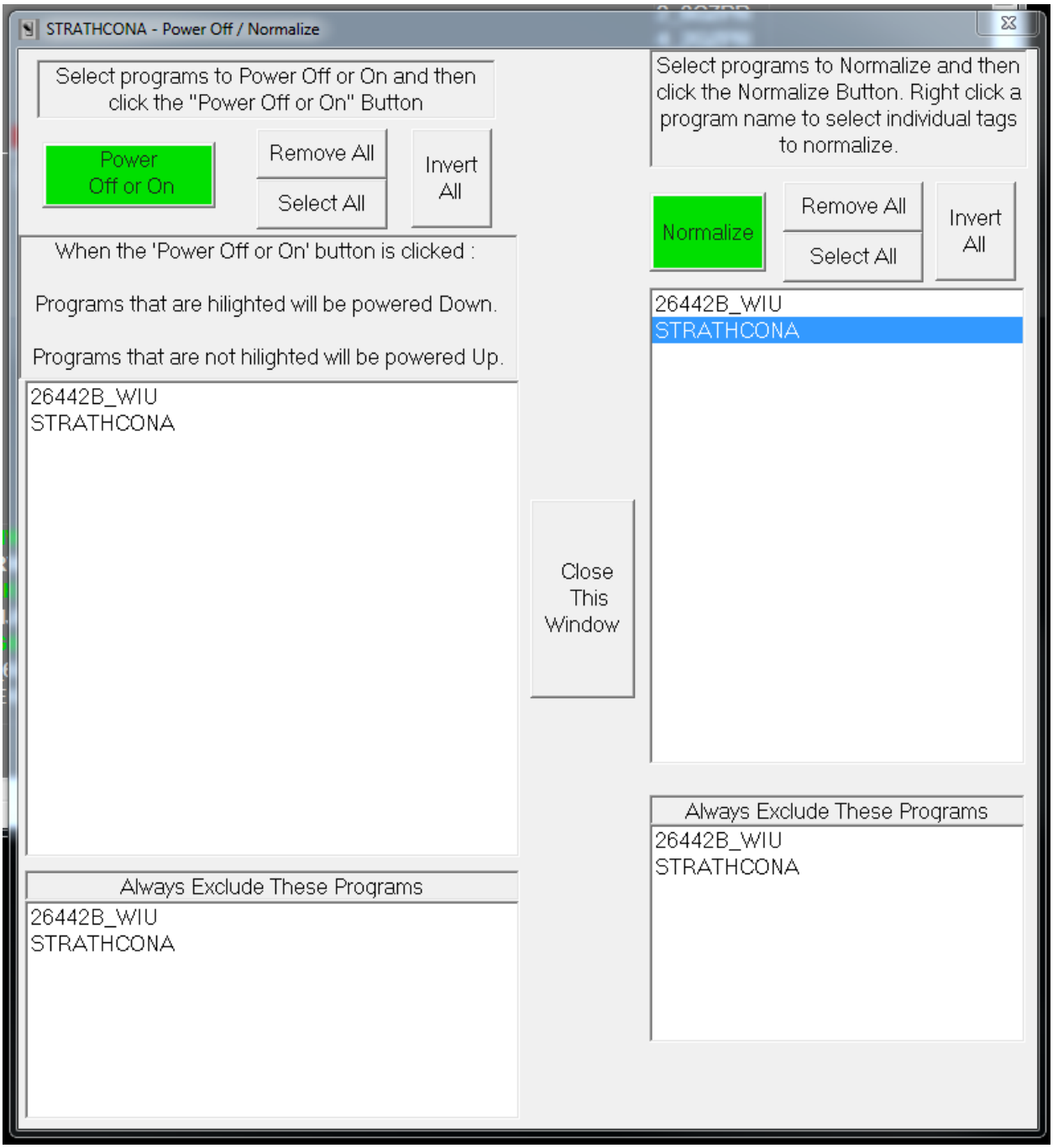
VHLC specific communications setup (highlighted in blue box):



Power OnOff & Normalization

Used to power off and reset all statuses for the controller.
(Accessible from the Track Plan button ribbon.)

The normalization feature allows setup of default values for inputs and outputs. To configure, “right click” on the list entry to access the setup dialog (e.g. “STRATHCONA” highlighted in blue)

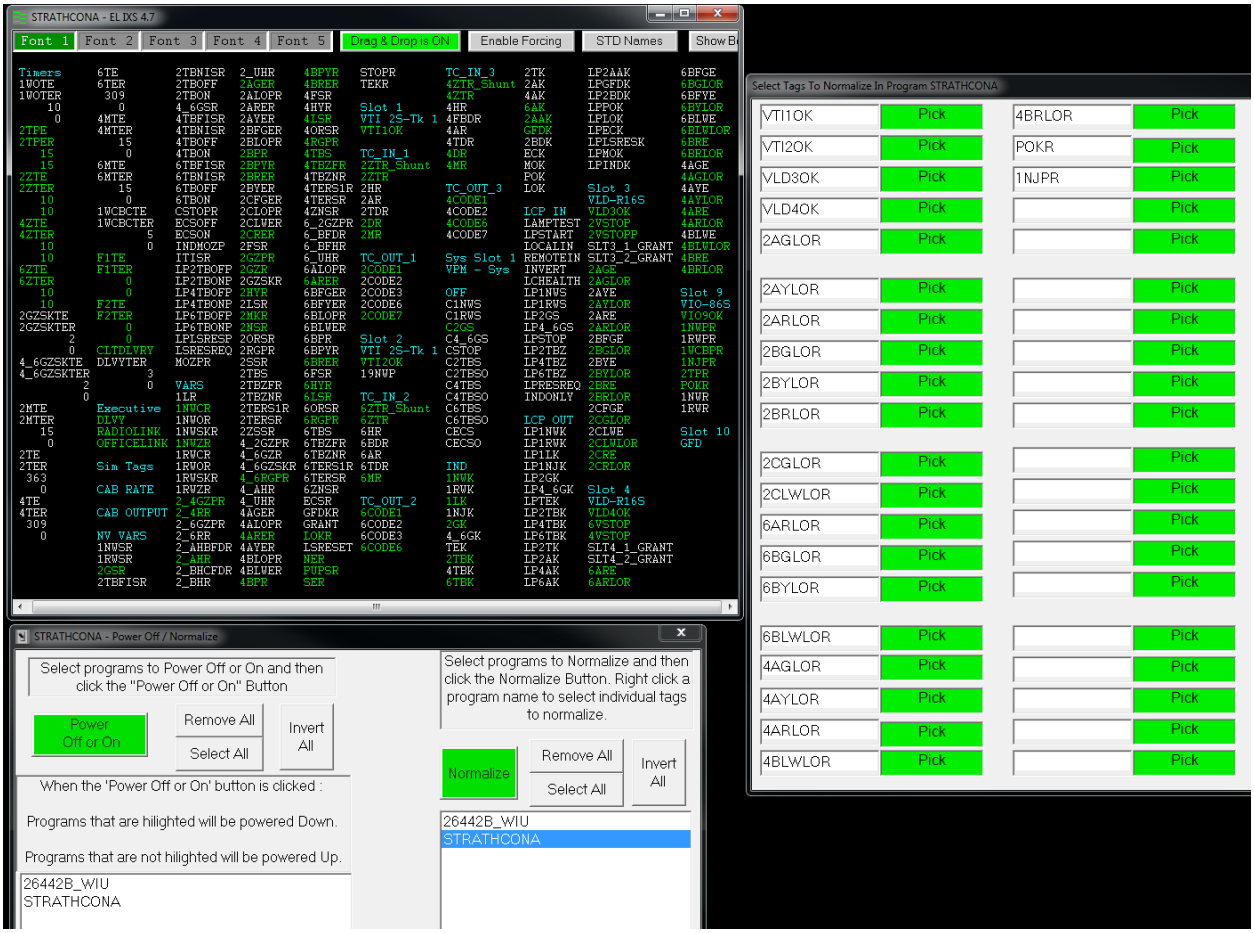


Select Tags To Normalize In Program STRATHCONA
VTI1OK
Pick
VTI2OK
Pick
VLD3OK
Pick
VLD4OK
Pick
2AGLOR
Pick
2AYLOR
Pick
2ARLOR
Pick
2BGLOR
Pick
2BYLOR
Pick
2BRLOR
Pick
2CGLOR
Pick
2CLWLOR
Pick
6ARLOR
Pick
6BGLOR
Pick
6BYLOR
Pick
6BLWLOR
Pick
4AGLOR
Pick
4AYLOR
Pick
4ARLOR
Pick
4BLWLOR
Pick
4BRLOR
Pick
POKR
Pick
1NJPR
Pick
Pick
Pick

A convenient time saver is to use the drag and drop tag feature from the tag list window:

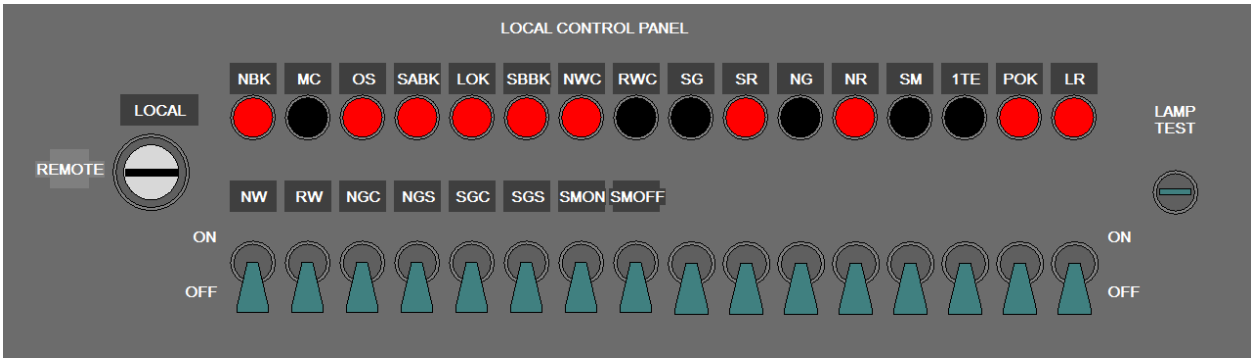
1. Select “Drag & Drop is ON” button
2. highlight the tag you want in blue
3. Drag to destination tag box

(see following example):

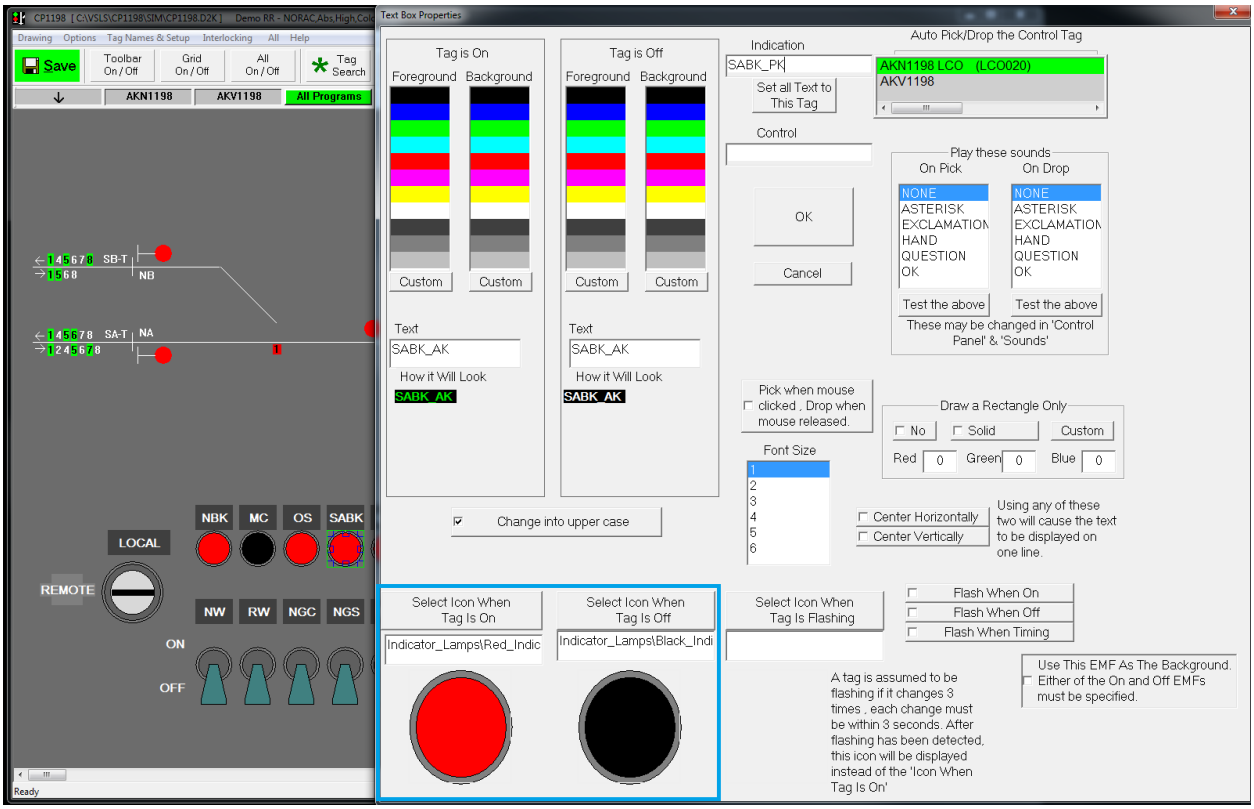


Creating a Local Control Panel

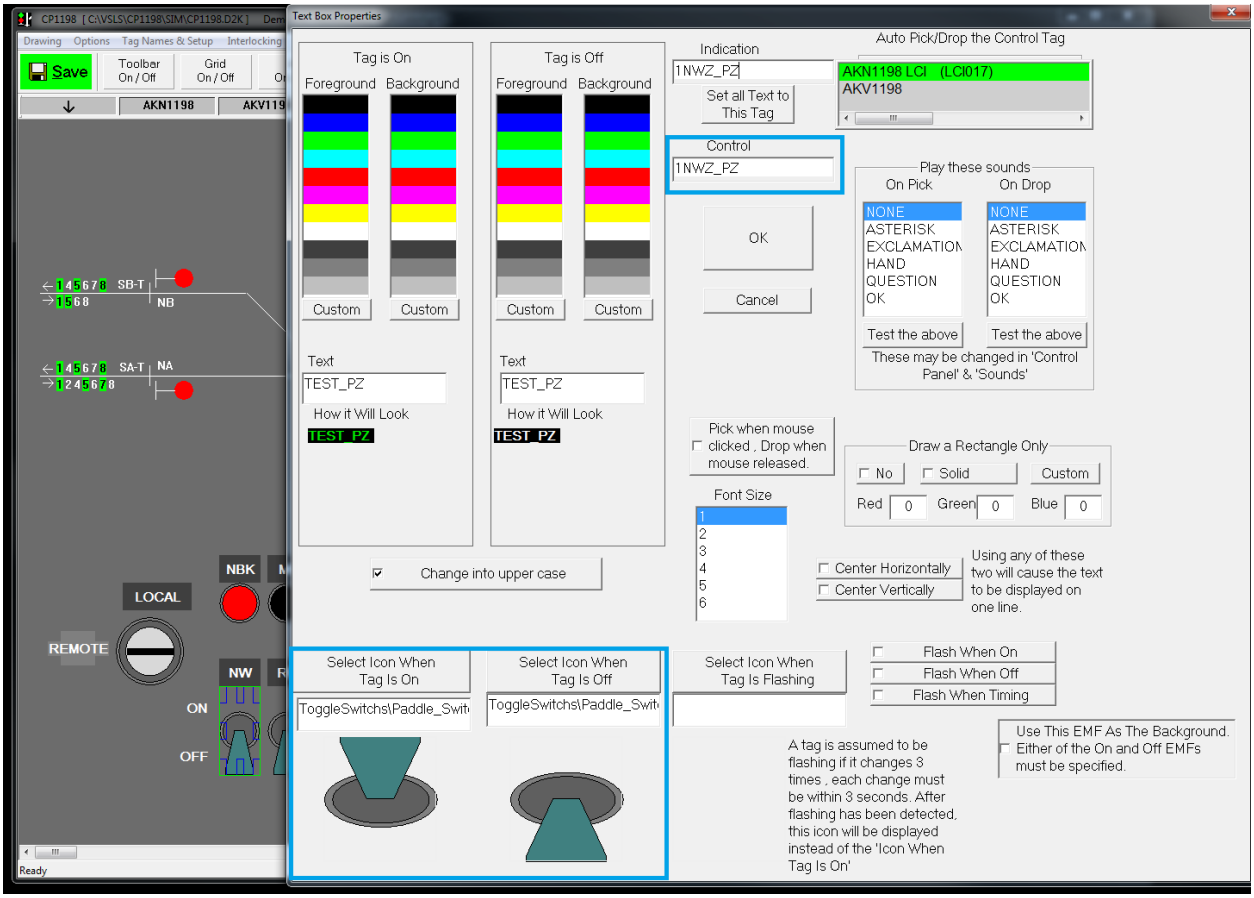
Vital-Sim allows users to create a graphic representation of a local control panel on the track plan:



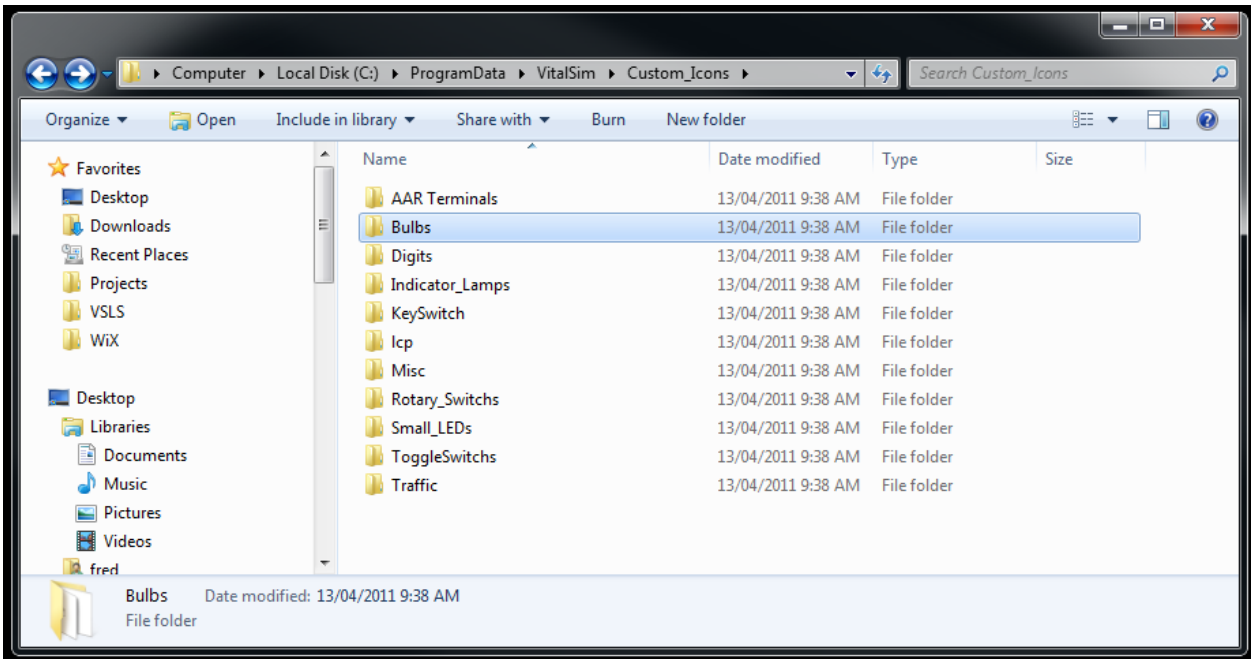
The graphic icons are added as “Text Boxes” where text is overlaid with a graphic/icon depending on the state of an associated status tag (see highlighted “Select Icon when Tag Is ON” and “Select Icon When Tag Is Off”):



Similarly, a switch control can be added (note the highlighted Control and Icon sections):



"Select Icon" accesses the following libraries provided with Vital-Sim.



ElectroCode IV – Multi-Instance Setup

Vital-Sim provides that ability to simulate ElectroCode IV locations/configurations with multiple instances of the same application. This is useful for simulations consisting of multiple automatic signals between 2 interlockings. This can be setup using Windows "Shortcuts" from the main Vital-Sim project folder to a BITMAP.SEL file in the separate Electrocode IV project folders.

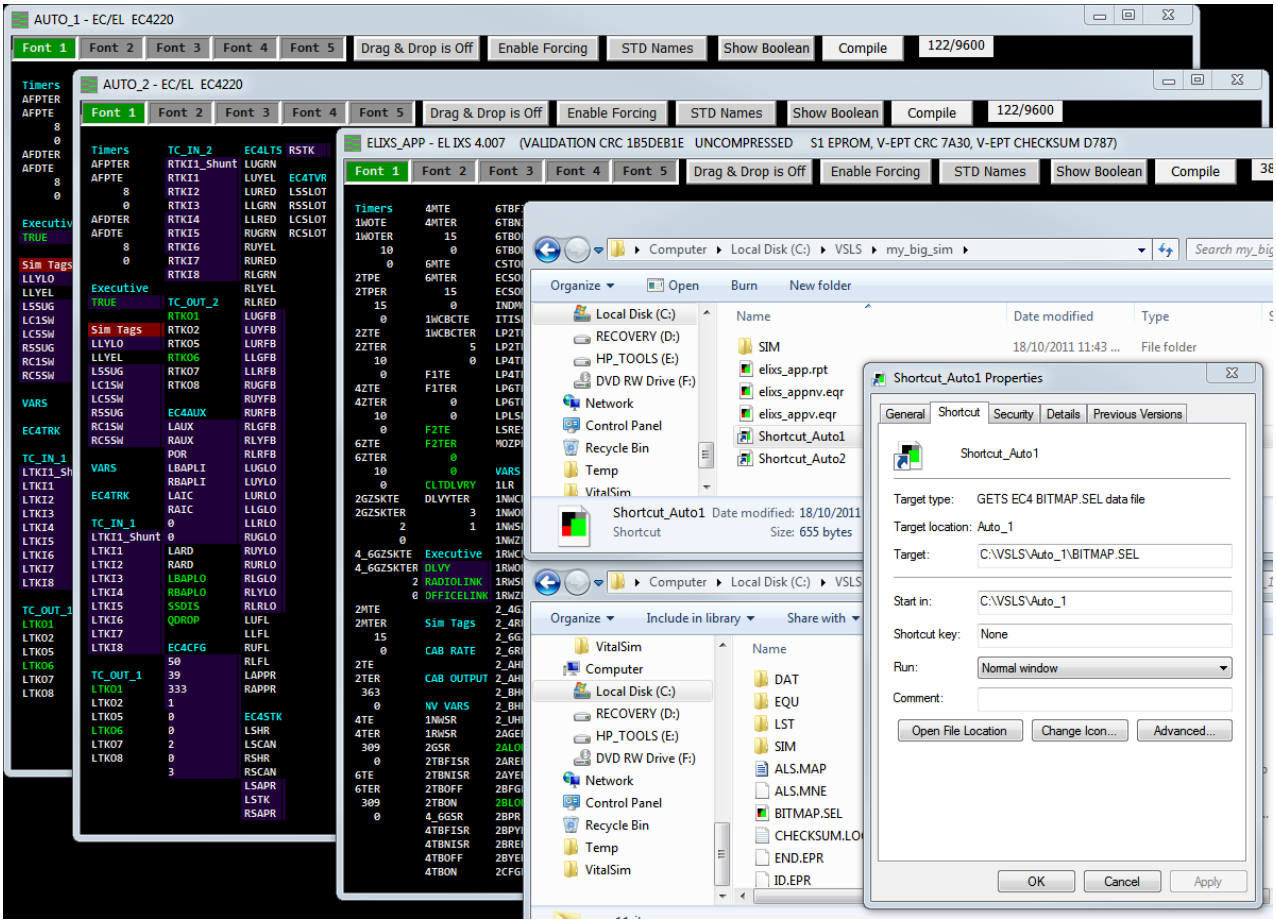
Example:

Location with an ElectrlogIXS Vital/NV application (elixs_app), and 2 ElectroCode IV automatic signals with the same application (Auto_1, Auto_2):

Folder	**Files**
C:/VSLS/my_big_sim	elixs_app.rpt, elixs_appv.eqr, elixs_appnv.eqr ShortCut_Auto1 (to C:/VSLS/Auto_1/BITMAP.SEL) ShortCut_Auto2 (to C:/VSLS/Auto_2/BITMAP.SEL)
C:/VSLS/Auto_1	BITMAP.SEL,
C:/VSLS/Auto_1/DAT	*.DAT files
C:/VSLS/Auto_1/EQU	*.EQU files
C:/VSLS/Auto_1/LST	*.LST files
C:/VSLS/Auto_2	BITMAP.SEL,
C:/VSLS/Auto_2/DAT	*.DAT files
C:/VSLS/Auto_2/EQU	*.EQU files
C:/VSLS/Auto_2/LST	*.LST files

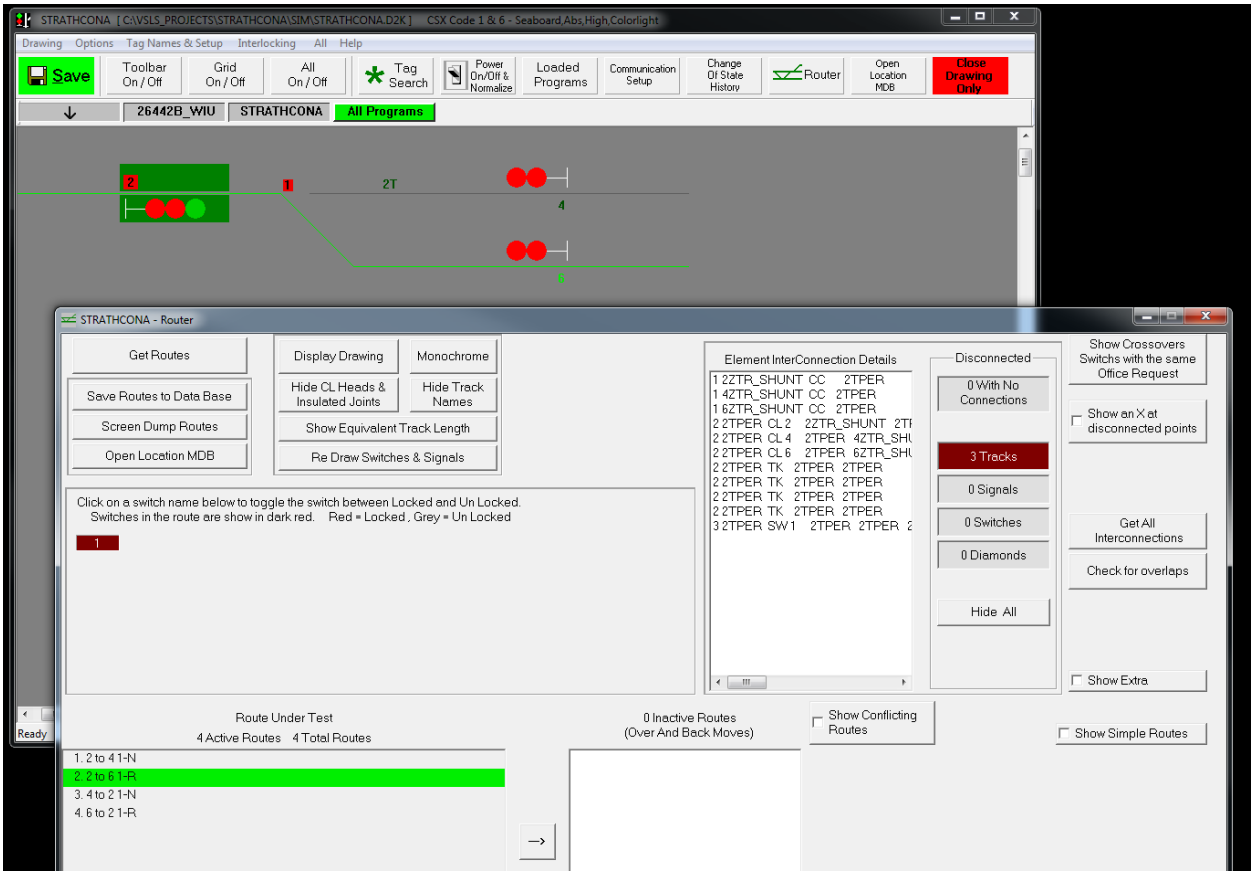
Note: You will need to create the Electcode IV copies (instances of the IV sub folders and associated files). You will also need to create the shortcuts from the main project folder to the BitMAP.SEL files in each instance folder.

Once setup, Vital-Sim should be able to automatically recognize the electrocode IV instances on startup - taglist windows for each application instance should be created.

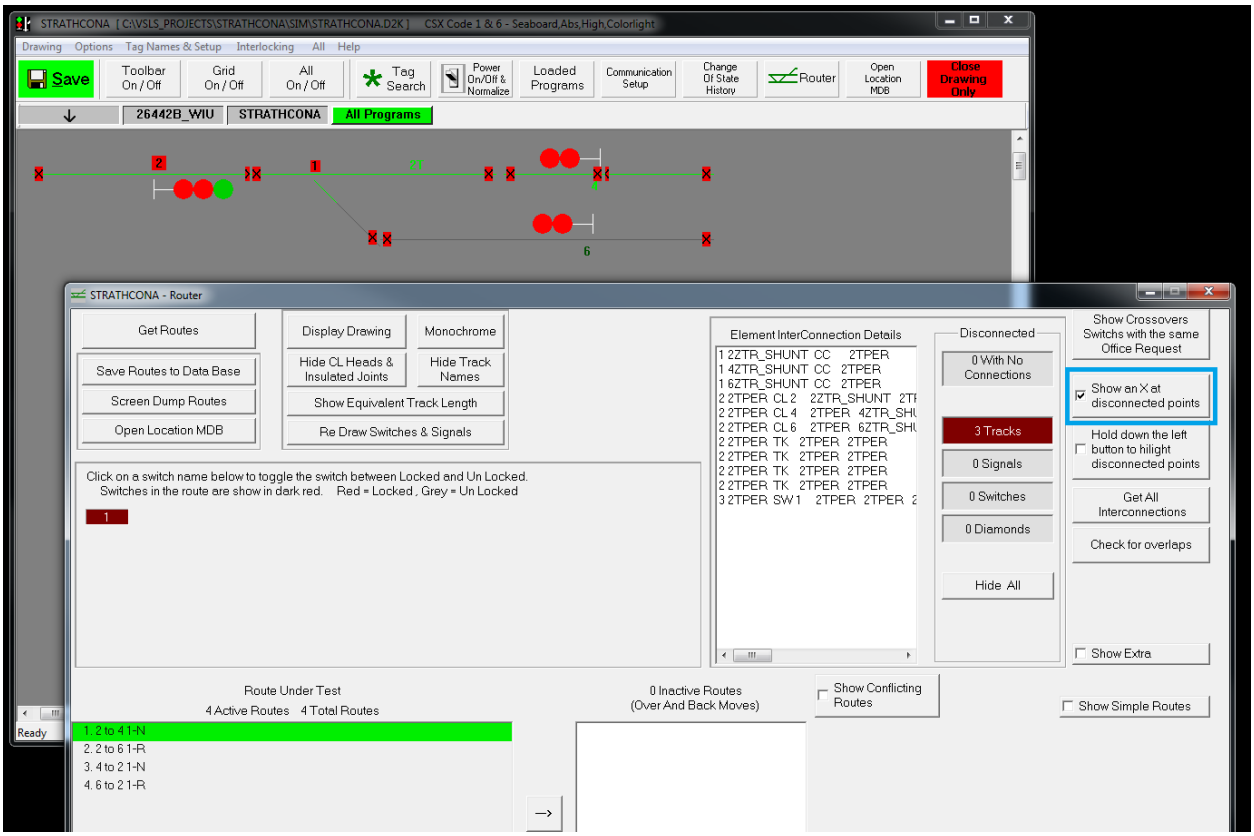


Router

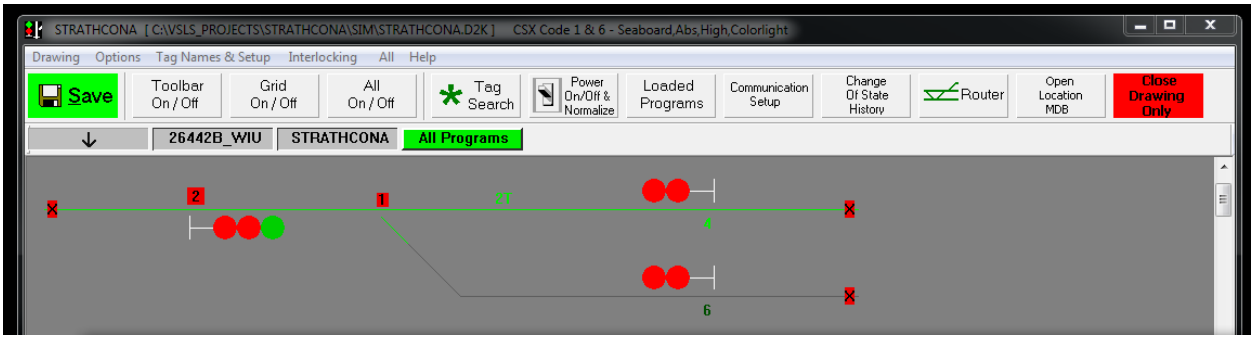
The Router is a Vital-Sim module (option) that is a prerequisite for the LampOut and Downgrades (Test sheets) module- a brief overview is provided here. To access the Router dialog, click the Router button on the Track Plan Ribbon menu.



The Router will give inconsistent results if the track plan elements are not positioned and connected properly. The Router `Show X at disconnected points` check option allows users to quickly locate and correct mismatches in the track plan:

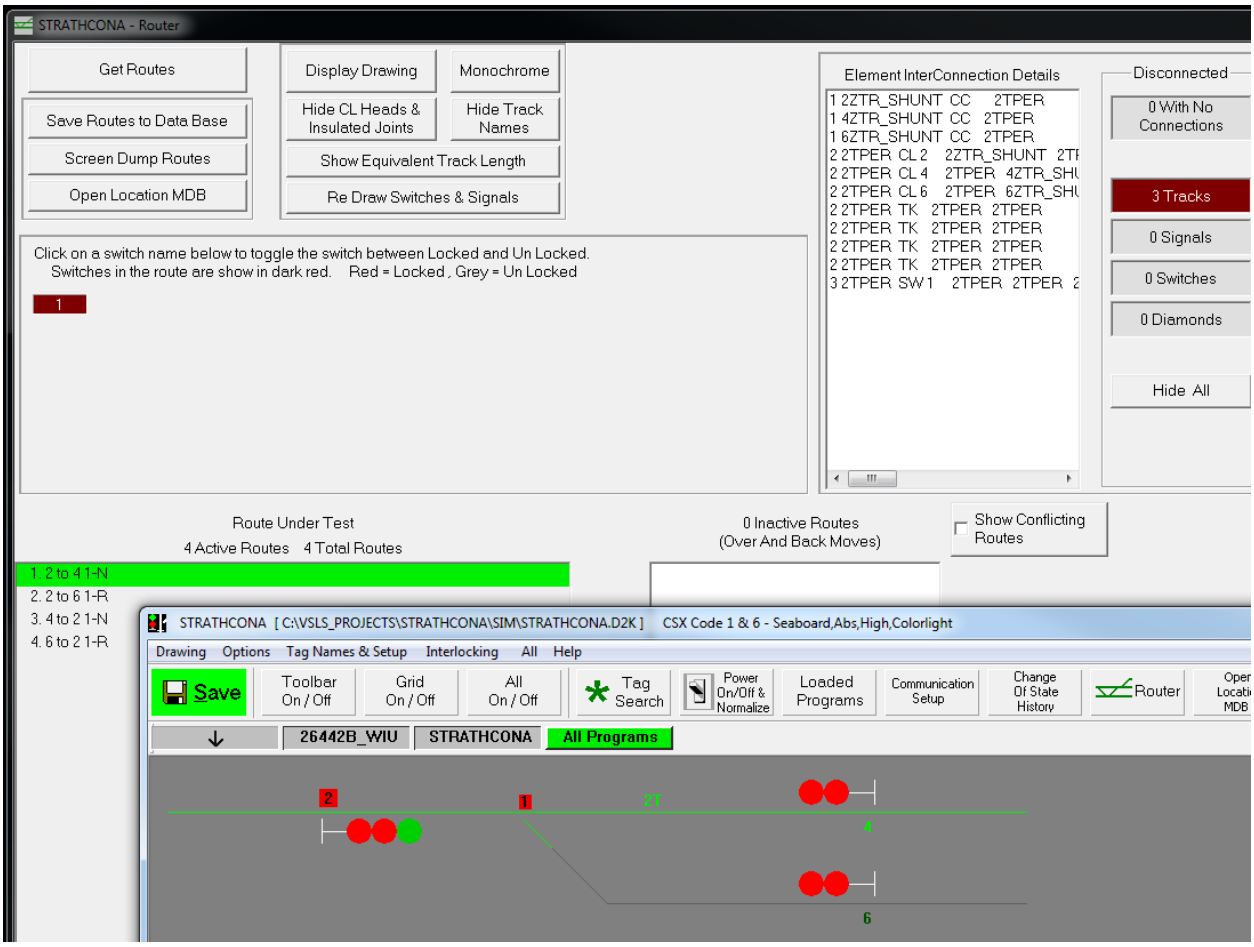


Connected:

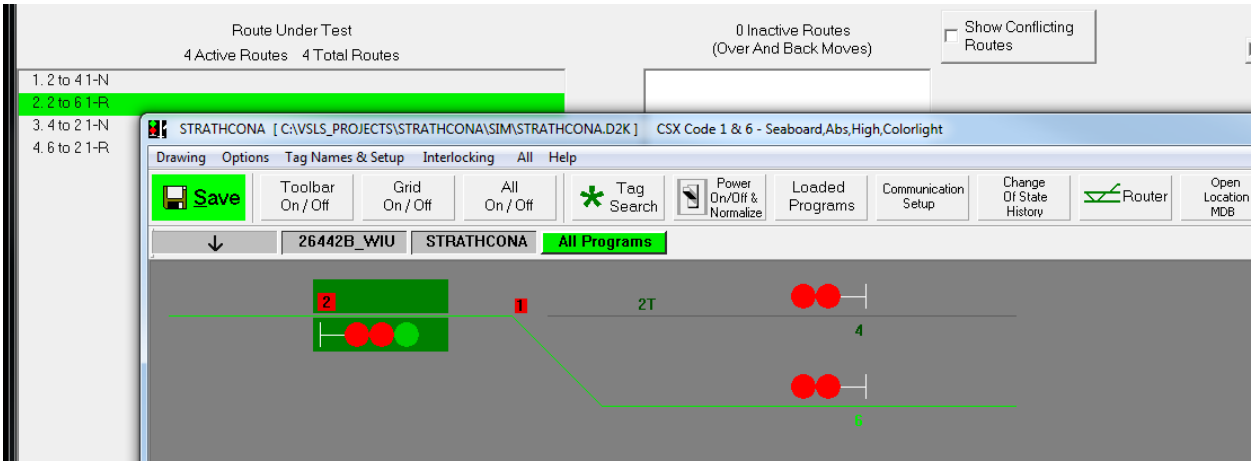


Viewing Routes – Select from list of routes found:

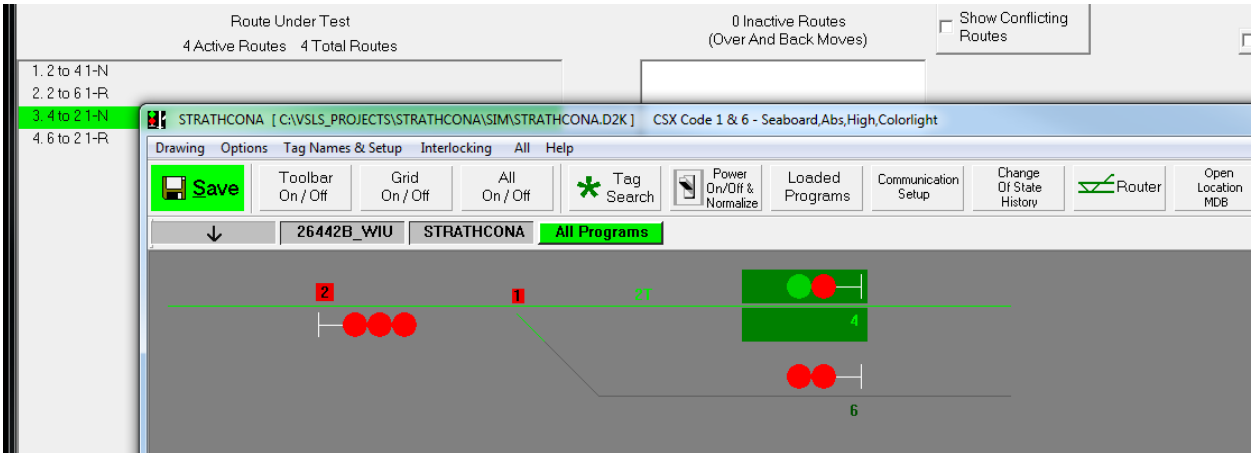
The entry location for route is identified by signal with A head green
(note: this convention is used even though it may not be a valid aspect for the route selected)



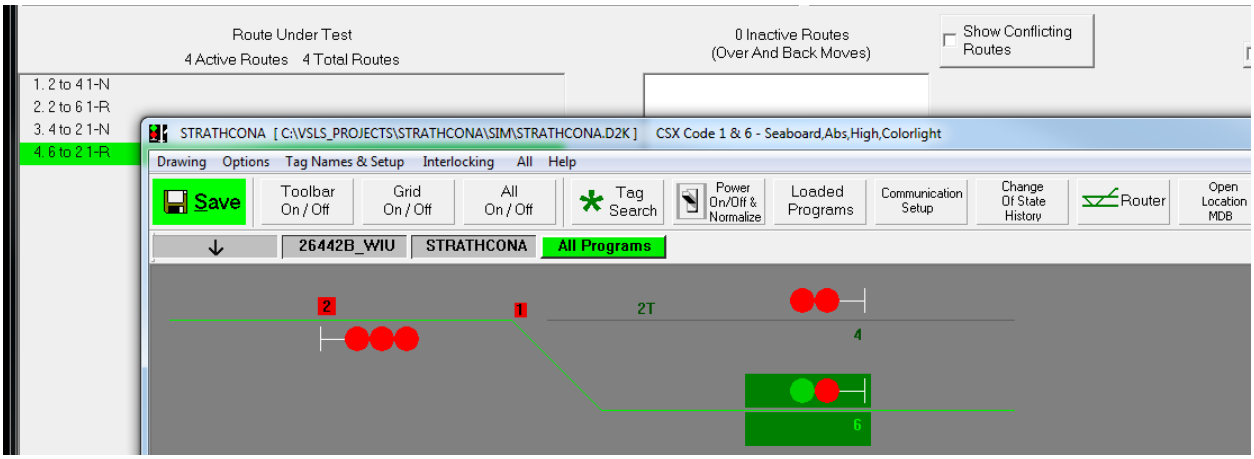
Route 2:



Route 3:


Route Under Test
4 Active Routes 4 Total Routes
0 Inactive Routes
(Over And Back Moves)
Show Conflicting Routes
1. 2 to 4 1-N
2. 2 to 6 1-R
3. 4 to 2 1-N
4. 6 to 2 1-R
STRATHCONA [C:\VSLS_PROJECTS\STRATHCONA\SIM\STRATHCONA.D2K] CSX Code 1 & 6 - Seaboard,Abs,High,Colorlight
Drawing Options Tag Names & Setup Interlocking All Help
Save
Toolbar On / Off
Grid On / Off
All On / Off
Tag Search
Power On/Off & Normalize
Loaded Programs
Communication Setup
Change Of State History
Router
Open Location MDB
26442B_WIU
STRATHCONA
All Programs
2
1
2T
4
6

Route 4:

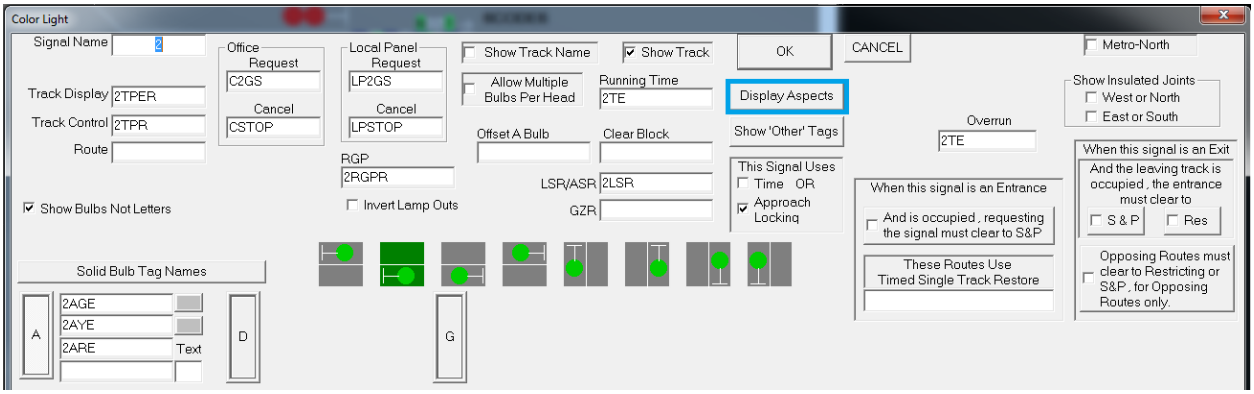

Route Under Test
4 Active Routes 4 Total Routes
0 Inactive Routes
(Over And Back Moves)
Show Conflicting Routes
1. 2 to 4 1-N
2. 2 to 6 1-R
3. 4 to 2 1-N
4. 6 to 2 1-R
STRATHCONA [C:\VSLS_PROJECTS\STRATHCONA\SIM\STRATHCONA.D2K] CSX Code 1 & 6 - Seaboard,Abs,High,Colorlight
Drawing Options Tag Names & Setup Interlocking All Help
Save
Toolbar On / Off
Grid On / Off
All On / Off
Tag Search
Power On/Off & Normalize
Loaded Programs
Communication Setup
Change Of State History
Router
Open Location MDB
26442B_WIU
STRATHCONA
All Programs
2
1
2T
4
6

Aspects and Downgrades

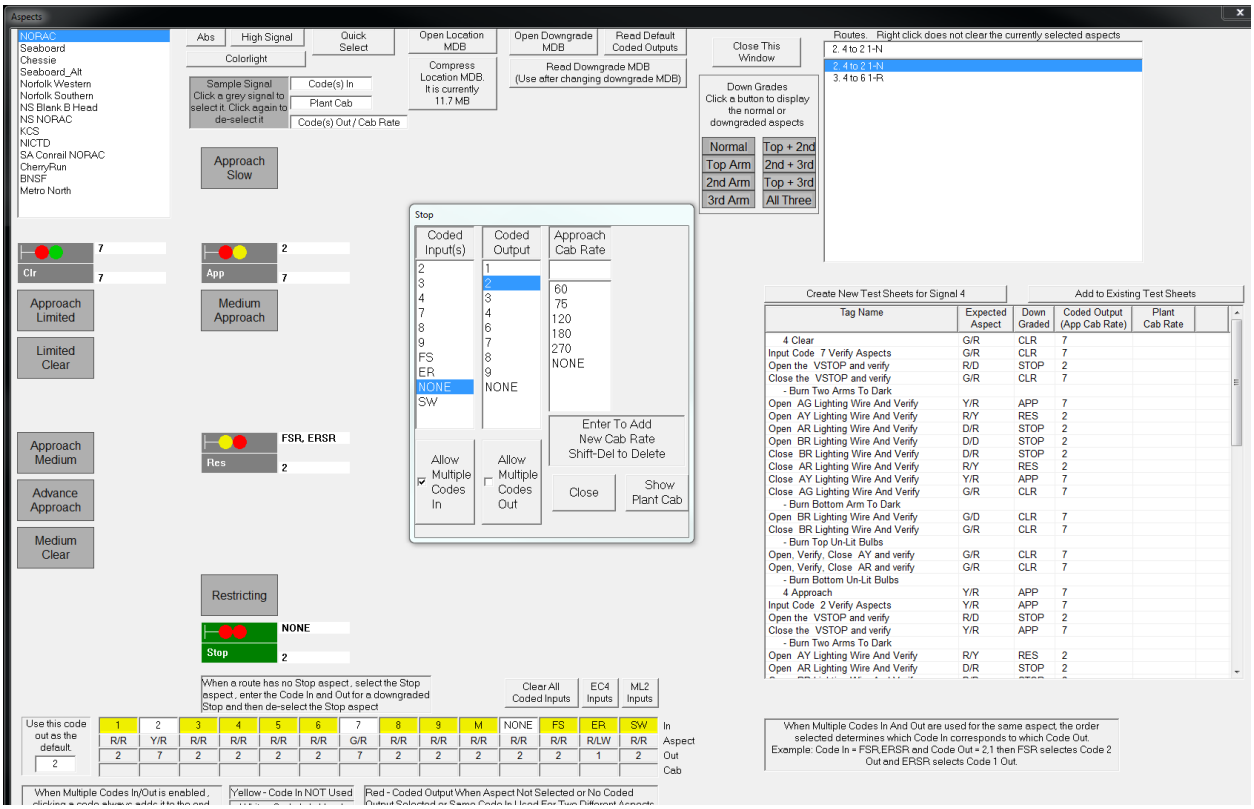
For Vital-Sim customers that have purchased the Lamp Out List Accessory Program option, several screens are provided to define signal aspects and associated downgrades for each route in an interlocking.

Reports for the generation of test sheets are also provided.

To access this feature, right click on a signal in your location track plan while in edit mode-this activates the Color Light dialog. Then select the “Display Aspects” button:

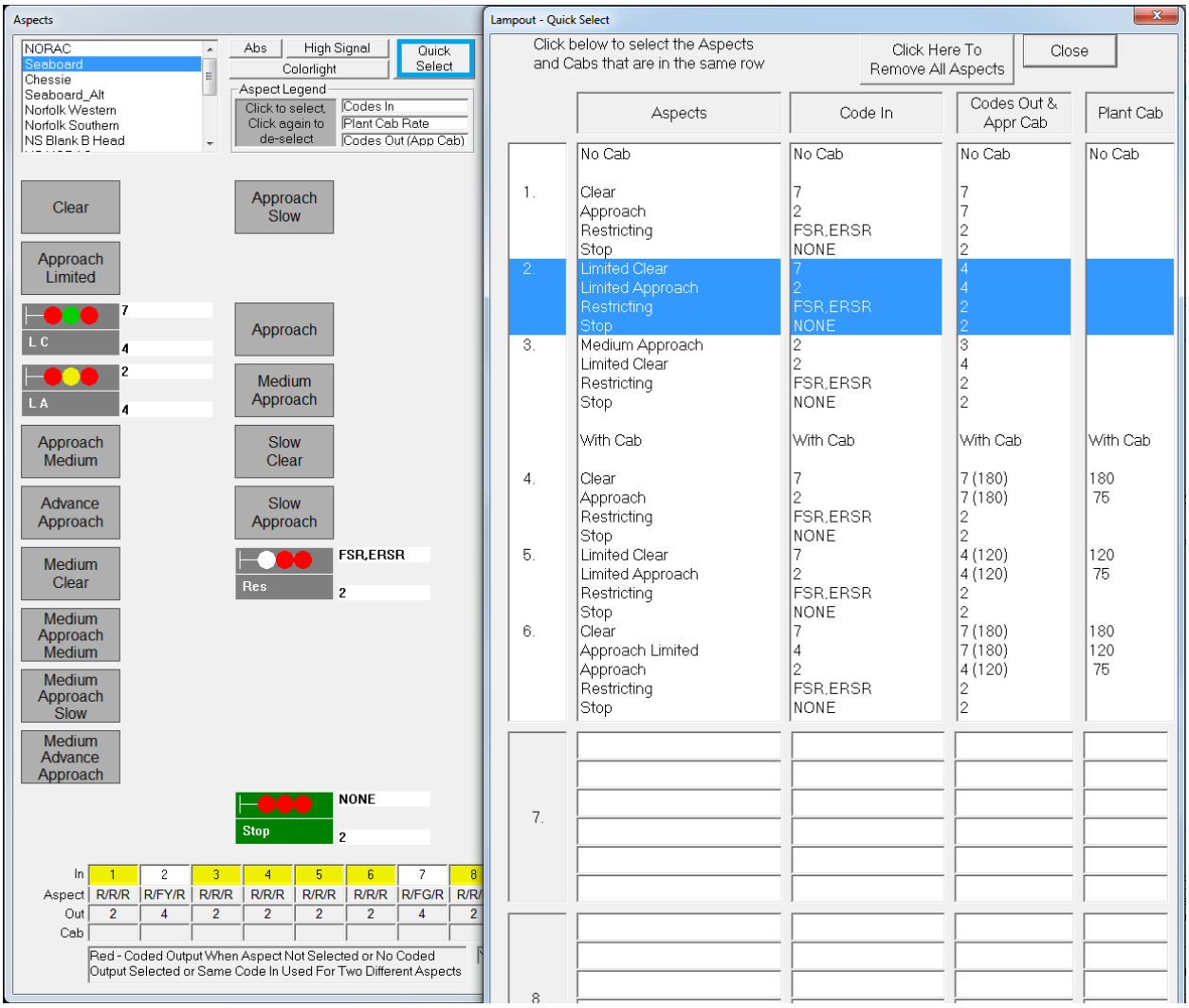


The Aspects Dialog is then activated:

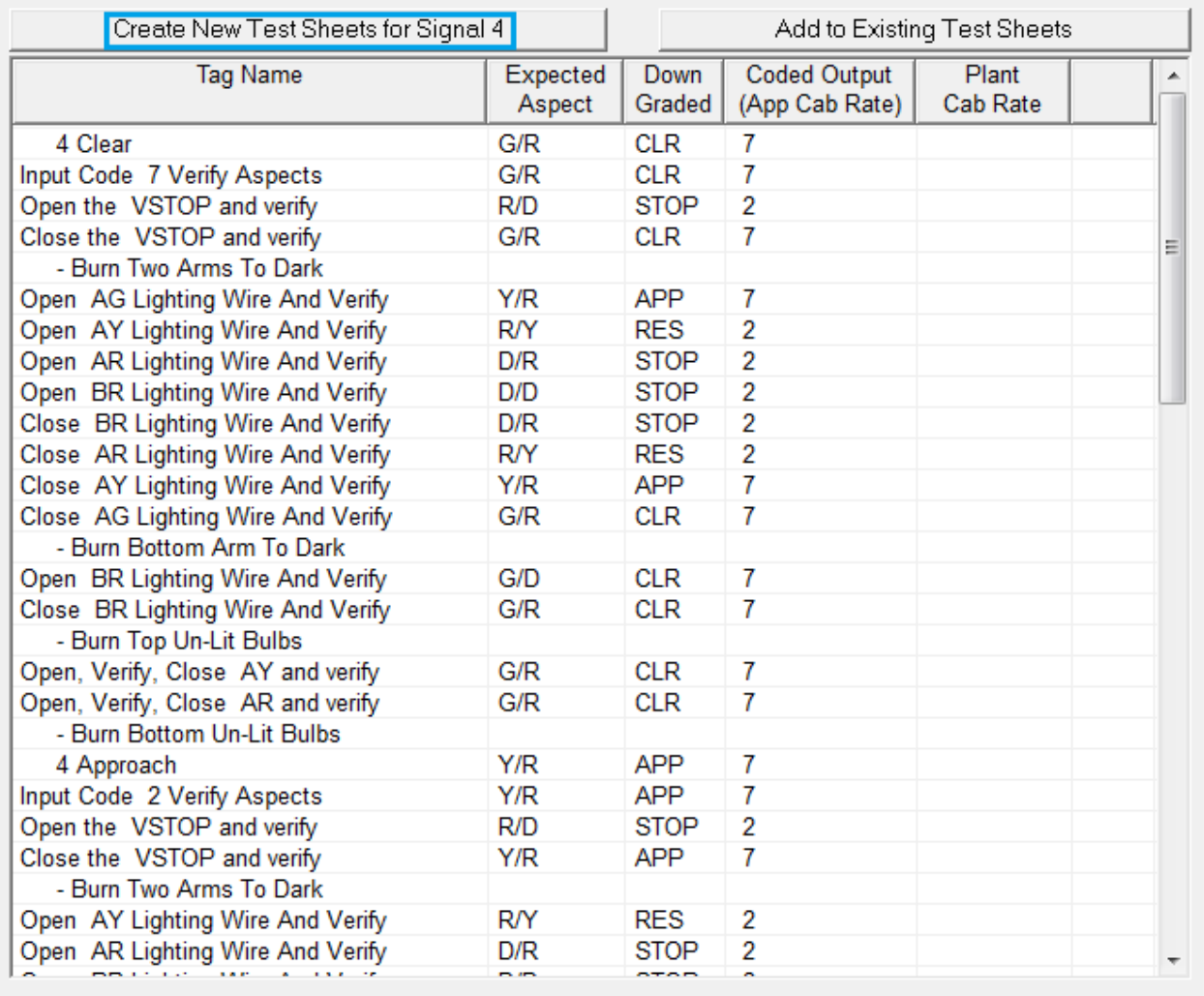


The Aspects dialog allows the user to define the signal aspects for each route associated with a color or searchlight signal. These aspects can be configured according to railroad rule-set, track circuit codes/cab rates.

A quick select utility is provided to enable the quick setup of common configurations:



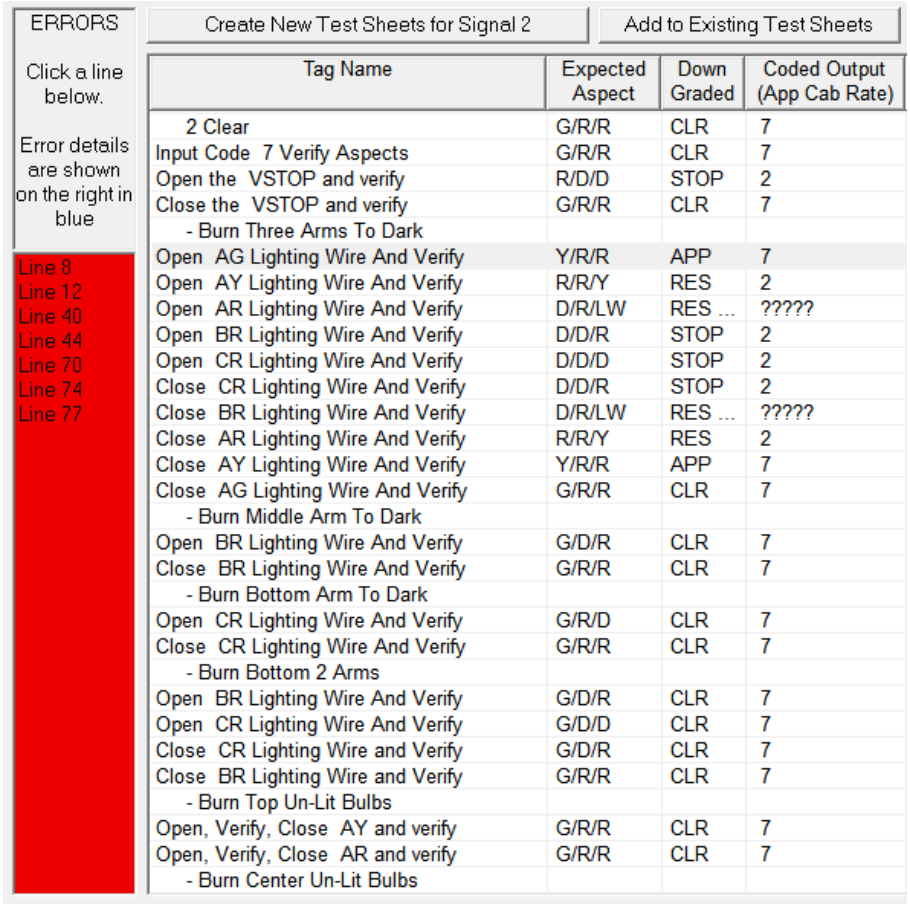
Once the aspects for the signal are defined, Lampout-Downgrade testsheets can be generated:



Tag Name	Expected Aspect	Down Graded	Coded Output (App Cab Rate)	Plant Cab Rate	
4 Clear	G/R	CLR	7		
Input Code 7 Verify Aspects	G/R	CLR	7		
Open the VSTOP and verify	R/D	STOP	2		
Close the VSTOP and verify	G/R	CLR	7		
- Burn Two Arms To Dark					
Open AG Lighting Wire And Verify	Y/R	APP	7		
Open AY Lighting Wire And Verify	R/Y	RES	2		
Open AR Lighting Wire And Verify	D/R	STOP	2		
Open BR Lighting Wire And Verify	D/D	STOP	2		
Close BR Lighting Wire And Verify	D/R	STOP	2		
Close AR Lighting Wire And Verify	R/Y	RES	2		
Close AY Lighting Wire And Verify	Y/R	APP	7		
Close AG Lighting Wire And Verify	G/R	CLR	7		
- Burn Bottom Arm To Dark					
Open BR Lighting Wire And Verify	G/D	CLR	7		
Close BR Lighting Wire And Verify	G/R	CLR	7		
- Burn Top Un-Lit Bulbs					
Open, Verify, Close AY and verify	G/R	CLR	7		
Open, Verify, Close AR and verify	G/R	CLR	7		
- Burn Bottom Un-Lit Bulbs					
4 Approach	Y/R	APP	7		
Input Code 2 Verify Aspects	Y/R	APP	7		
Open the VSTOP and verify	R/D	STOP	2		
Close the VSTOP and verify	Y/R	APP	7		
- Burn Two Arms To Dark					
Open AY Lighting Wire And Verify	R/Y	RES	2		
Open AR Lighting Wire And Verify	D/R	STOP	2		

(If there are multiple routes for a signal, use ”Create New Test Sheets for Signal” for the initial route; then use “Add to Existing Test Sheets” for each additional route.)

For some conditions, errors are detected and highlighted:



Tag Name	Expected Aspect	Down Graded	Coded Output (App Cab Rate)
2 Clear	G/R/R	CLR	7
Input Code 7 Verify Aspects	G/R/R	CLR	7
Open the VSTOP and verify	R/D/D	STOP	2
Close the VSTOP and verify	G/R/R	CLR	7
- Burn Three Arms To Dark			
Open AG Lighting Wire And Verify	Y/R/R	APP	7
Open AY Lighting Wire And Verify	R/R/Y	RES	2
Open AR Lighting Wire And Verify	D/R/LW	RES ...	?????
Open BR Lighting Wire And Verify	D/D/R	STOP	2
Open CR Lighting Wire And Verify	D/D/D	STOP	2
Close CR Lighting Wire And Verify	D/D/R	STOP	2
Close BR Lighting Wire And Verify	D/R/LW	RES ...	?????
Close AR Lighting Wire And Verify	R/R/Y	RES	2
Close AY Lighting Wire And Verify	Y/R/R	APP	7
Close AG Lighting Wire And Verify	G/R/R	CLR	7
- Burn Middle Arm To Dark			
Open BR Lighting Wire And Verify	G/D/R	CLR	7
Close BR Lighting Wire And Verify	G/R/R	CLR	7
- Burn Bottom Arm To Dark			
Open CR Lighting Wire And Verify	G/R/D	CLR	7
Close CR Lighting Wire And Verify	G/R/R	CLR	7
- Burn Bottom 2 Arms			
Open BR Lighting Wire And Verify	G/D/R	CLR	7
Open CR Lighting Wire And Verify	G/D/D	CLR	7
Close CR Lighting Wire and Verify	G/D/R	CLR	7
Close BR Lighting Wire and Verify	G/R/R	CLR	7
- Burn Top Un-Lit Bulbs			
Open, Verify, Close AY and verify	G/R/R	CLR	7
Open, Verify, Close AR and verify	G/R/R	CLR	7
- Burn Center Un-Lit Bulbs			

Example Generated Lampout Testsheet:

Location: **Region:**
Line **MP** **Rev**
Test Started: **Test Completed:**
Tested By

PRE-TEST SIGNAL LAMP DOWNGRADE

This test is to verify proper signal aspects and the code out for each aspect One aspect per form
Determine proper lamp downgrades before beginning test
The HGPR (Yellow Repeater) and the DGPR (Green Repeater) are only for signal mechanisms

Signal **2** **Aspect** **Clear**

1. 2 to 4 1-N

Verify: Home and Approach Signal Aspects			Aspect	Down Graded Aspect	2ZTR_S HUNT Code	Plant Cab Rate	RGPR H/L	HGPR	DGPR
	2	Clear	G/R/R	CLR	7		L		
Input Code	7	Verify Aspects	G/R/R	CLR	7		L		
Open the	VSTOP	and verify	R/D/D	STOP	2		H		
Close the	VSTOP	and verify	G/R/R	CLR	7		L		
	- Burn	Three Arms To Dark							
Open	AG	Lighting Wire And Verify	Y/R/R	APP	7		L		
Open	AY	Lighting Wire And Verify	R/R/LW	RES	2		L		
Open	AR	Lighting Wire And Verify	D/R/LW	RES	2		L		
Open	BR	Lighting Wire And Verify	D/D/LW	RES	2		L		
Open	CLW	Lighting Wire And Verify	D/D/R	STOP	2		H		
Open	CR	Lighting Wire And Verify	D/D/D	STOP	2		H		
Close	CR	Lighting Wire And Verify	D/D/R	STOP	2		H		
Close	CLW	Lighting Wire And Verify	D/D/LW	RES	2		L		
Close	BR	Lighting Wire And Verify	D/R/LW	RES	2		L		
Close	AR	Lighting Wire And Verify	R/R/LW	RES	2		L		
Close	AY	Lighting Wire And Verify	Y/R/R	APP	7		L		
Close	AG	Lighting Wire And Verify	G/R/R	CLR	7		L		
	- Burn	Middle Arm To Dark							
Open	BR	Lighting Wire And Verify	G/D/R	CLR	7		L		
Close	BR	Lighting Wire And Verify	G/R/R	CLR	7		L		
	- Burn	Bottom Arm To Dark							
Open	CR	Lighting Wire And Verify	G/R/D	CLR	7		L		
Close	CR	Lighting Wire And Verify	G/R/R	CLR	7		L		
	- Burn	Bottom 2 Arms							
Open	BR	Lighting Wire And Verify	G/D/R	CLR	7		L		
Open	CR	Lighting Wire And Verify	G/D/D	CLR	7		L		
Close	CR	Lighting Wire and Verify	G/D/R	CLR	7		L		
Close	BR	Lighting Wire and Verify	G/R/R	CLR	7		L		
	- Burn	Top Un-Lit Bulbs							
Open, Verify, Close	AY	and verify	G/R/R	CLR	7		L		
Open, Verify, Close	AR	and verify	G/R/R	CLR	7		L		
	- Burn	Center Un-Lit Bulbs							
Open, Verify, Close	BY	and verify	G/R/R	CLR	7		L		

October-18-11 Page 1 of 5

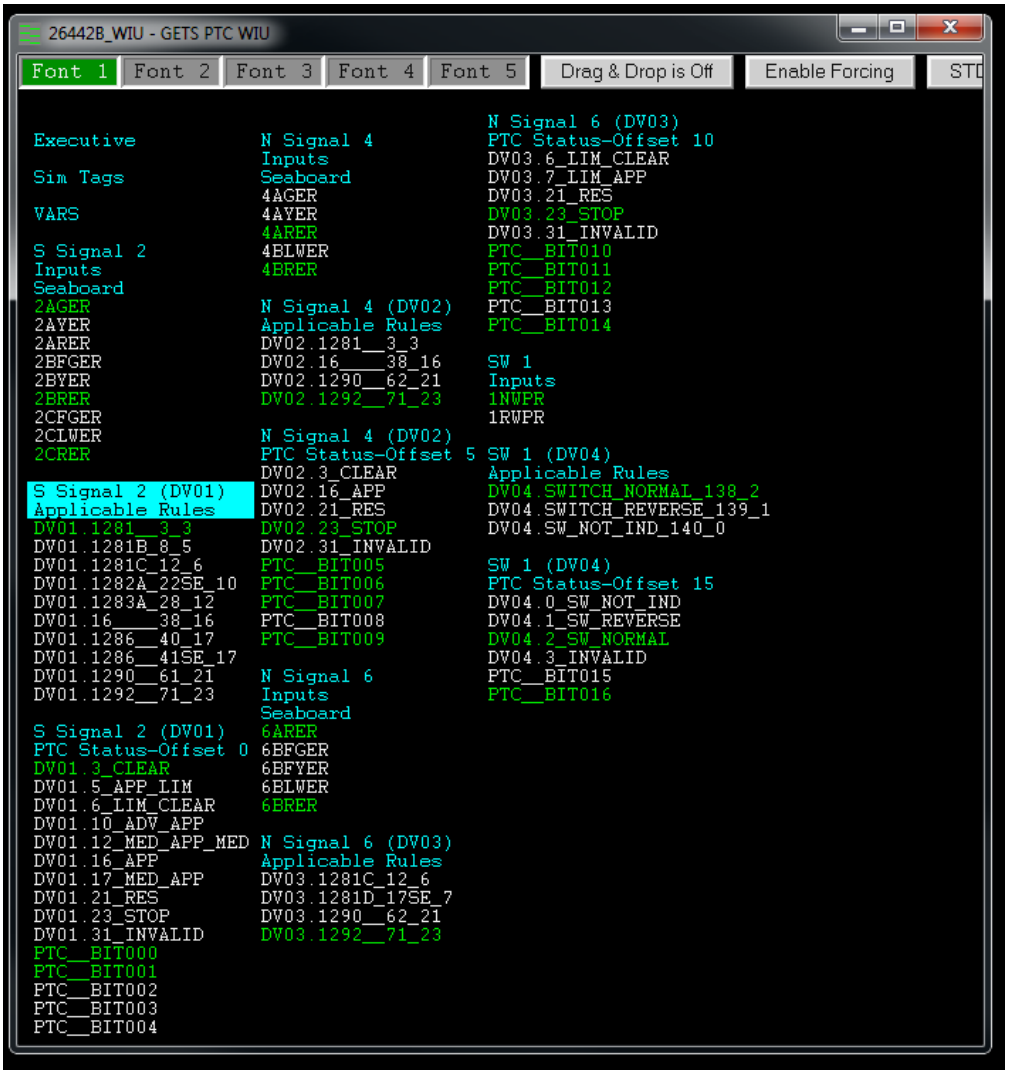
PTC Support

Vital-Sim has recently been upgraded to include PTC support; the Strathcona example presented here includes the PTC application - *26442B_WIU.ptcbmap*.

If your Vital-Sim configuration includes support for PTC, then these applications are compiled and loaded by Vital-Sim when present in the project folder.

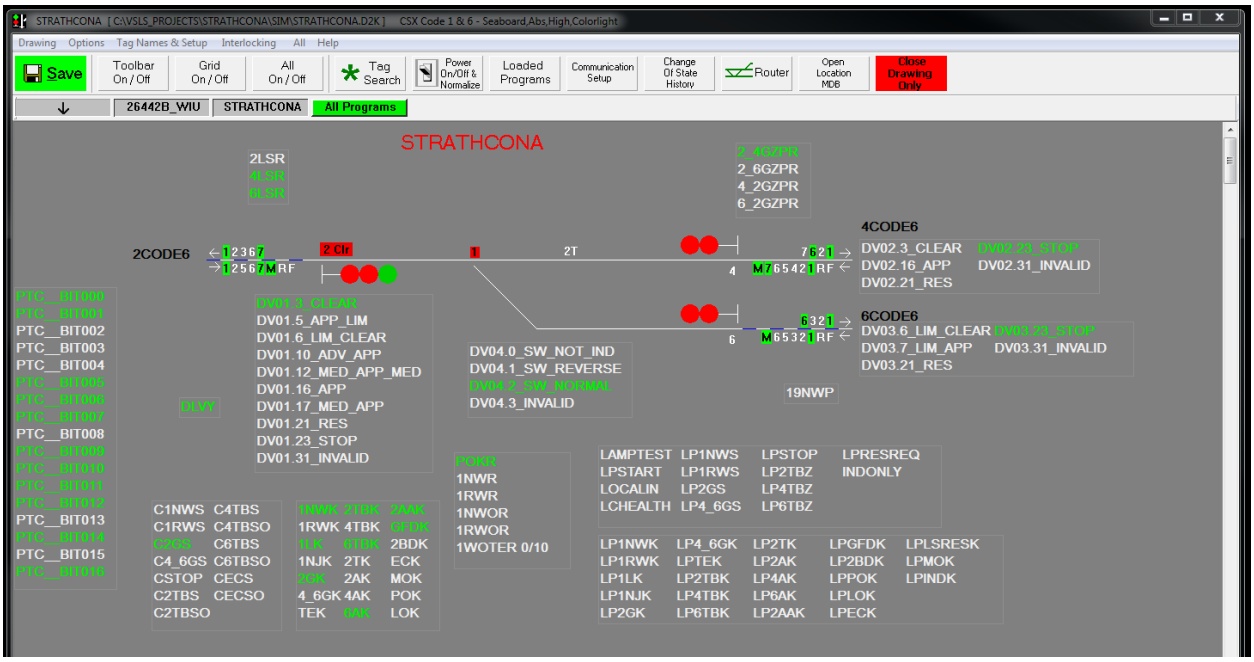
(".ptcbmap" generated by GETS PTC configuration tool)
(".wiuapp" generated by Ansaldo/Microlok PTC tools)

A taglist window is generated for each PTC application in the project folder:

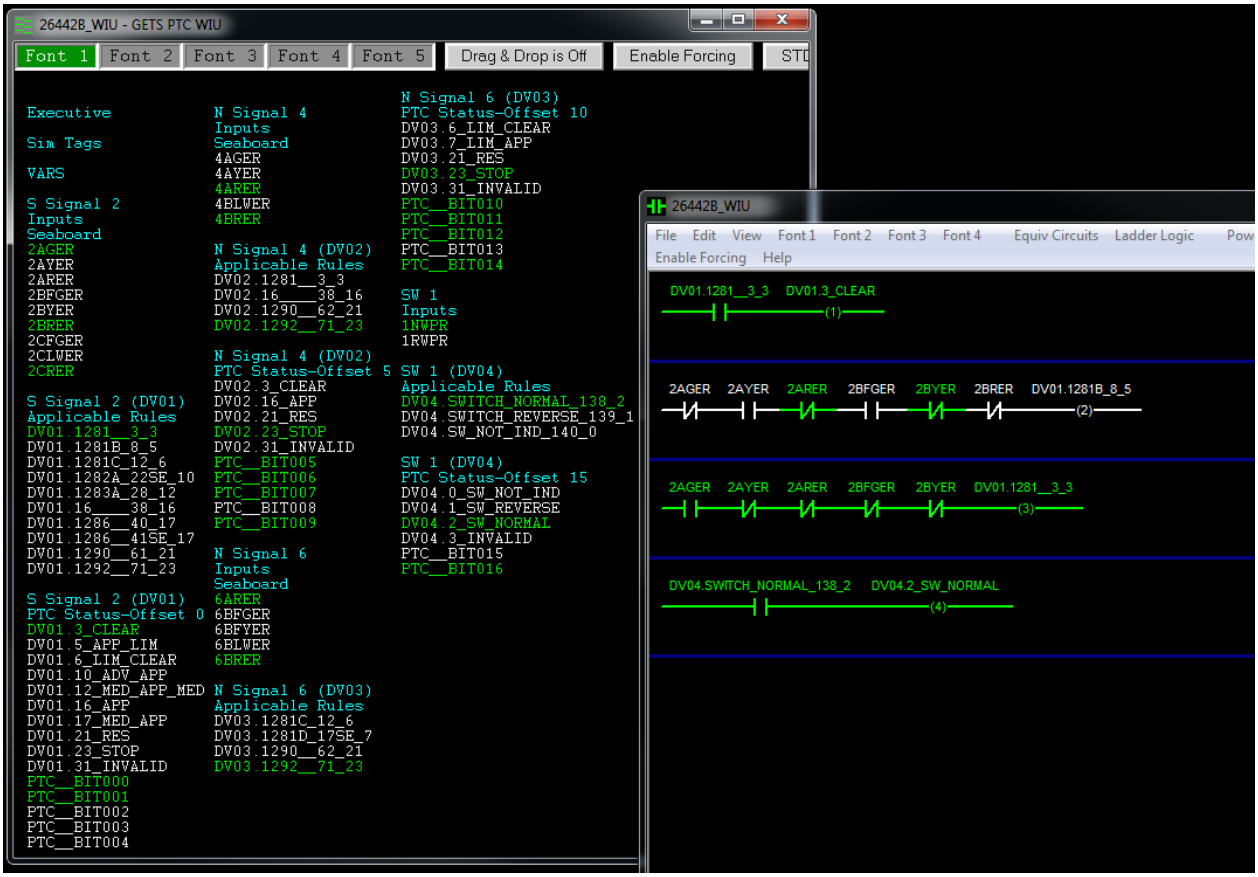


PTC statuses may be added to your track plan allowing you to verify PTC statuses while testing your location. The following example includes Popup Tag boxes for:

- PTC message bits (0-16)
- Signal 2 PTC Aspects (device DV01)
- Signal 4 PTC Aspects (device DV02)
- Signal 6 PTC Aspects (device DV03)
- Switch 1 PTC Aspects (Device DV04)



The Equivalent Circuits window allows one to navigate/analyze PTC rules, mappings and dependencies:



FAQs

1. When starting Vital-Sim, a message box with “Status=71” is displayed. After pressing OK, an Error Message box then displays with: ”Can’t find any hardware lock, returned value 3”. Press OK then results in Vital-Sim shutting down.
   Cause/Resolution: Missing/disconnected USB Key.
2. When starting Vital-Sim, a message box with “2. At 0” is displayed. After pressing OK, Vital-Sim appears to start normally but statuses are not updating.
   Cause/Resolution: Mismatched USB Key, find correct USBKey.
   Vital-Sim software is built/configured to run with a specific, serialized USB Key. In organizations with multiple keys, this condition will occur where the incorrect key is used when trying to start Vital-Sim.