

# **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.
- <u>Help with Problems</u> 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 reinstatement 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:

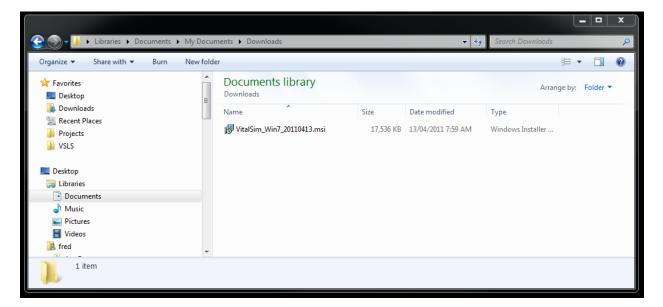
http://www.vital-sim.com/SimulatorManual/SimulatorMainFrame.html

# **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
- 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)

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🗨 🚽 🖪 🕨 Control Panel 🕨	🕶 🍫 See	Search Programs and Features								
Control Panel Home View installed updates Turn Windows features on or	Uninstall or change a program To uninstall a program, select it from the list and then click	Uninstall or change a program To uninstall a program, select it from the list and then click Uninstall, Change, or Repair.								
off	Organize 🔻		• • •							
	Name	Publisher	Installed O	n Size	Version	•				
	Sentinel System Driver Installer 7.5.1	SafeNet, Inc.	15/05/2010	1.26 MB	7.5.1					
	Osynaptics Pointing Device Driver	Synaptics Incorporated	28/06/2010	46.4 MB	15.0.17.4					
	Visual Studio .NET Prerequisites - English	Microsoft Corporation	15/05/2010	2.25 MB	9.0.21022					
	🕞 Visual Studio 2005 Tools for Office Second Edition Runtime	Microsoft Corporation	15/05/2010							
	🕞 Visual Studio Tools for the Office system 3.0 Runtime	Microsoft Corporation	15/05/2010							
	Vital-Sim Inc.	13/04/2011	22.4 MB	2.0.0.2						
	Microsoft Corneration	15/05/2010	44 7 MD	2 5 1 2 20 0	+					

# **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)

Organize 🔻 🖻 Open Burn New folder 🔠 👻 🗍 🔞									
🌗 Opera	*	Name	Date modified	Туре	Size				
QuickTime		alloc_dt.exe	12/04/2011 4:24 PM	Application	3,019 KB				
🍌 Realtek		ChangeProgramNames.exe	12/04/2011 4:23 PM	Application	1,753 KB				
Reference Assemblies		Drawing2K.exe	12/04/2011 4:29 PM	Application	6,879 KB				
📗 Toshiba		EC_To_ALL.exe	12/04/2011 4:23 PM	Application	1,750 KB				
Uninstall Information		EquivalentCircuits.exe	12/04/2011 4:23 PM	Application	1,568 KB				
VitalSim		LCP_Simulator.exe	12/04/2011 4:23 PM	Application	1,860 KB				
Windows Defender	=	LerInOnePiece.exe	12/04/2011 4:23 PM	Application	1,756 KB				
Windows Installer XML v3.5		LerToBoolean.exe	12/04/2011 4:23 PM	Application	1,788 KB				
Windows Live           Windows Mail         Windows Mail		RestartSimulator.exe	12/04/2011 4:23 PM	Application	1,727 KB				
Windows Mail Windows Media Player Windows Media E 0 SDK 82	-	SimErrorMessages.exe	12/04/2011 4:23 PM	Application	1,704 KB				

← → Computer → Local	Disk (C:) → ProgramData → VitalSim →	<b>-</b> 4 <sub>2</sub>	Search VitalSim	P
Organize ▼ 🛕 Open ▼ Bu			:≡ - □ 0	
<ul> <li>NortonInstaller</li> <li>PreEmptive Solutions</li> <li>Recovery</li> <li>shaw</li> <li>Sun</li> <li>Temp</li> </ul>	Name AspectsAndDownGrades Custom_Icons CustomRailroad CustomTagNames PTC	Date modified 13/04/2011 8:04 AM 13/04/2011 8:04 AM 13/04/2011 8:04 AM 13/04/2011 8:04 AM 09/12/2010 2:32 PM	Type File folder File folder File folder File folder File folder	Size
VitalSim WildTangent sim Default_FRA_Test.mdb	Default_FRA_Test.mdb		Microsoft Acces 11 10:58 AM	11,368 KB
Default_FRA_Test.mdb Microsoft Access Database		Date created: 17/01/20	MA 86:01 11	

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Pictures							
Videos							
AppData							
🔓 Contacts							
📜 Desktop	-						
2 items							

# 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".

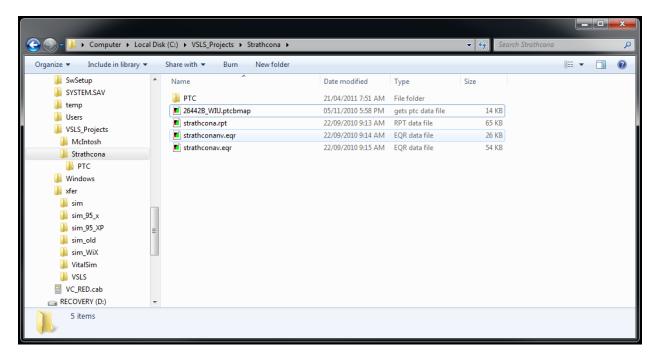
# **Creating a Vital-Sim Project:** Basic ACE ElectroLogIXS PTC Example – Strathcona Location

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.

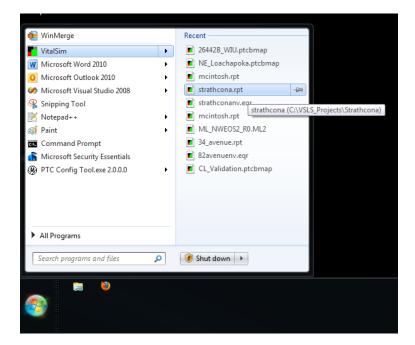


# **Supported File Types**

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:



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1WOTE	4MTER	4TBON	2BRER	4TERSR	2DR	4CODE1		VLD-R165	4ARLOR		
1WOTER	15	6TBFISR	2BYER	4ZNSR	2MR	4CODE2	LPSTART	VLD30K	4BLWE		
10	15	6TBNISR	2CFGER	6 2GZPR	LUIN	4CODE6		2VSTOP	4BLWLOR		
0	6MTE	6TBOFF	2CLOPR	6 BFDR	TC OUT 1	4CODE7	REMOTEIN		4BRE		
2TPE	6MTER	6TBON	2CLWER	6 BFHR	2CODE1		INVERT	SLT3 1 GRANT			
2TPER	15	CSTOPR	2CRER	6 UHR	2CODE2	Svs Slot 1		SLT3 2 GRANT			
15	15	ECSOFF	2FSR	6ALOPR	2CODE3	VPM - Sys		2AGE	Slot 9		
15	1WCBCTE	ECSON	2GZPR	6ARER	2CODE6		LP1RWS	2AGLOR	VI0-865		
2ZTE	1WCBCTER	INDMOZP	2GZR	6BFGER	2CODE7	OFF	LP2G5	2AYE	VI090K		
2ZTER	5	ITISR	2GZ5KR	6BFYER		C1NWS	LP4 6GS	2AYLOR	1NWPR		
10	0	LP2TB0FP		6BLOPR	Slot 2	C1RWS	LPSTOP	2ARE	1RWPR		
10	F1TE	LP2TBONP		6BLWER	VTI 25 Tk 1		LP2TBZ	2ARLOR	1WCBPR		
4ZTE	F1TER	LP4TB0FP		6BPR	VTI20K	C4 6GS	LP4TBZ	2BFGE	1NJPR		
4ZTER	0	LP4TBONP		6BPYR	19NWP	CSTOP	LP6TBZ	2BGLOR	2TPR		
10		LP6TB0FP		6BRER		C2TBS	LPRESREQ		POKR		
10	F2TE	LP6TBONP	2RGPR	6FSR	TC IN 2	C2TBS0	INDONLY	2BYLOR	1NWR		
6ZTE	F2TER	LPLSRESP	255R	6HYR	6ZTR Shunt	C4TBS		2BRE	1RWR		
6ZTER		LSRESREQ	2TBS	6LSR	6ZTR	C4TBS0	LCP OUT	2BRLOR			
10		MOZPR	2TBZFR	60RSR	6HR	C6TBS	LP1NWK	2CFGE	Slot 10		
10	CLTDLVRY		2TBZNR	6RGPR	6BDR	C6TBS0	LP1RWK	2CGLOR	GFD		
2GZSKTE	DLVYTER	VARS	2TERS1R	6TBS	6AR	CECS	LP1LK	2CLWE	B1GFD		
2GZSKTER	3	1LR	2TERSR	6TBZFR	6TDR	CECS0	LP1NJK	2CLWLOR	B2GFD		
2	1	1NWCR	2Z55R	6TBZNR	6MR		LP2GK	2CRE	B3GFD		
0		1NWOR	4_2GZPR	6TERS1R		IND	LP4_6GK	2CRLOR			
4_6GZSKTE	Executive	1NWSKR	4 6GZR	6TERSR	TC_OUT_2	1NWK	LPTEK				
4_6GZSKTE	R DLVY	1NWZR	4_6GZSKR	6ZNSR	6CODE1	1RWK	LP2TBK	Slot 4			
	2 RADIOLINK	1RWCR	4_6RGPR	ECSR	6CODE2	1LK	LP4TBK	VLD-R165			
	Ø OFFICELINK	1RWOR	4_AHR	GFDKR	6CODE3	1NJK	LP6TBK	VLD40K			
2MTE		1RWSKR	4_UHR	GRANT	6CODE6	2GK	LP2TK	6VSTOP			
2MTER	Sim Tags	1RWZR	4AGER	LOKR		4_6GK	LP2AK	4VSTOP			
15		2_4GZPR	4ALOPR	LSRESET	Slot 2	TEK	LP4AK	SLT4_1_GRANT			
15	CAB RATE	2_4RR	4ARER	NER	VTI 25 Tk 2		LP6AK	SLT4_2_GRANT			
2TE		2_6GZPR	4AYER	PUPSR		4TBK	LP2AAK	6ARE			
2TER	CAB OUTPUT		4BLOPR	SER	TC_IN_3	бТВК	LPGFDK	6ARLOR			
363		2_AHBFDR		STOPR	4ZTR_Shunt	2TK	LP2BDK	6BFGE			
0	NV VARS	2_AHR	4BPR	TEKR	4ZTR	2AK	LPPOK	6BGLOR			
4TE	1NWSR	2_BHCFDR			4HR	4AK	LPLOK	6BFYE			
4TER	1RWSR	2_BHR	4BRER	Slot 1	4FBDR	6AK	LPECK	6BYLOR			
309	2GSR	2_UHR	4FSR	VTI 25 Tk 1		2AAK	LPLSRESK				
0	2TBFISR	2AGER	4HYR	VTI10K	4TDR	GFDK	LPMOK	6BLWLOR			
6TE	2TBNISR	2ALOPR	4LSR		4DR	2BDK	LPINDK	6BRE			
6TER	2TBOFF	2ARER	40RSR	TC_IN_1	4MR	ECK		6BRLOR			
309	2TBON	2AYER	4RGPR	2ZTR_Shunt		MOK		4AGE			
0	4_6GSR	2BFGER	4TBS	2ZTR		POK		4AGLOR			
	4TBFISR	2BLOPR	4TBZFR	2HR		LOK		4AYE			
	4TBNISR	2BPR	4TBZNR	2AR				4AYLOR			

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)

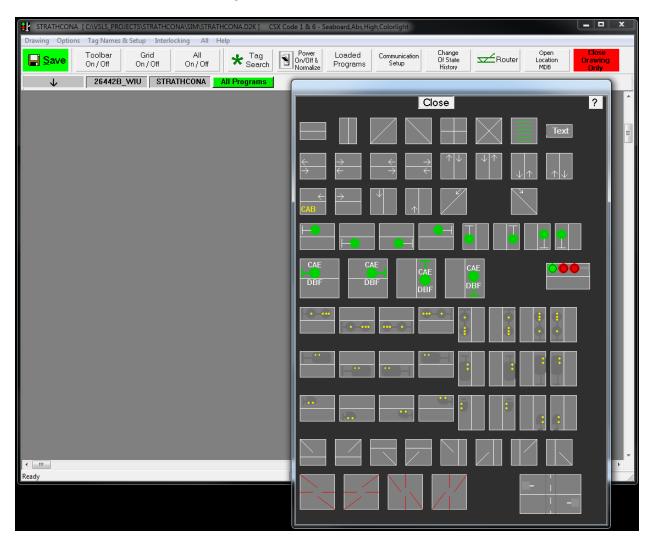
# **Building a Track Plan**

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)



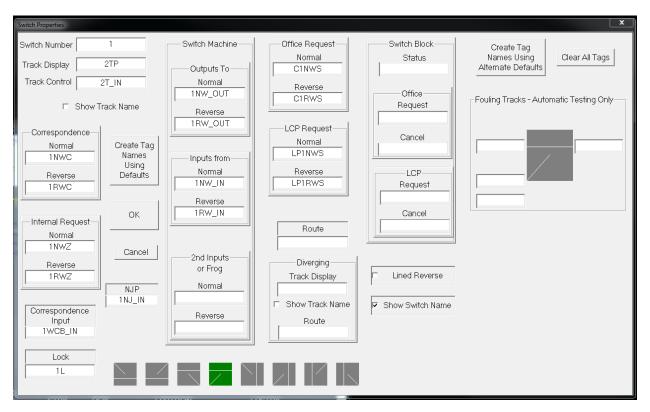
INTROCOME LEVEL TATALCOMANDITATICOMAND TATALCOMAND COMAND COM		
Save On/Oil Oil		
		Change DF State Safe Router Location DF Nawing On MOB
	26442B_WIU STRATHCONA All Programs	
		Close ?
		$\begin{array}{c} \leftarrow \\ \rightarrow \\ \rightarrow \end{array} \begin{array}{c} \leftarrow \\ \rightarrow \end{array} \begin{array}{c} \leftarrow \\ \rightarrow \end{array} \begin{array}{c} \rightarrow \\ \leftarrow \end{array} \begin{array}{c} \uparrow \downarrow \\ \leftarrow \end{array} \begin{array}{c} \uparrow \downarrow \\ \uparrow \downarrow \uparrow \end{array} \begin{array}{c} \downarrow \uparrow \\ \downarrow \uparrow \\ \downarrow \uparrow \end{array} \begin{array}{c} \downarrow \uparrow \\ \downarrow \downarrow \uparrow \end{array}$
653,782       81,97		
Ready 653,782 81,97		
Ready 653,782 81,97		
Ready 653,782 81,97		
	Ready 653,782 81,97	

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.

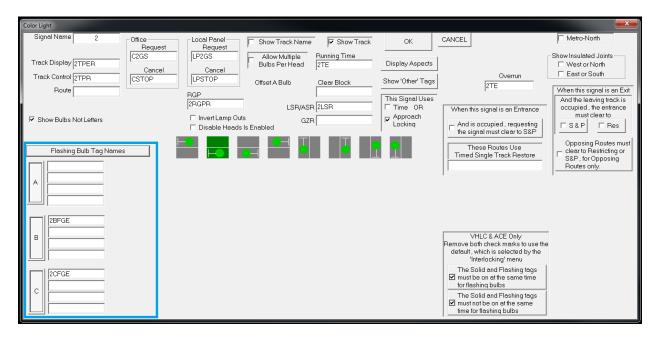
# **Color Light Signals**

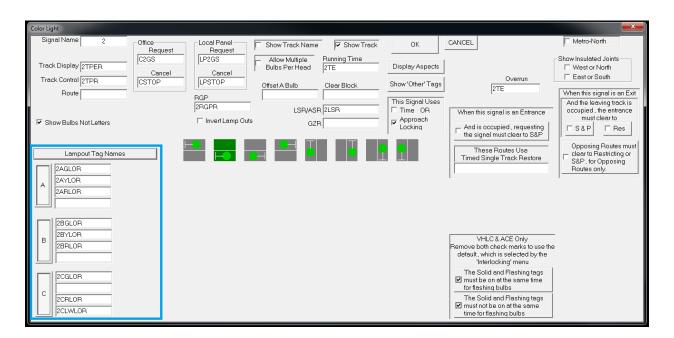
Select Number of Heads by clicking A, B or C Box.

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:

Color Light							<b></b>
Signal Name 4	Office Request	Local Panel F	Show Track Name	Show Track	ок	CANCEL	Metro-North
Track Display 2TP Track Control 2T_IN Route	C4GS Cancel CSTOP	Cancel	Bulbs Per Head	Running Time 4TE Clear Block 4LS	Display Aspects Show 'Other' Tags This Signal Uses I Time OR	Overrun 40RS When this signal is an Entrance	Show Insulated Joints West or North East or South When this signal is an Exit And the leaving track is occupied, the entrance
Show Bulbs Not Letters		Invert Lamp Outs	GZR		C Approach Locking	And is occupied , requesting	must clear to
Solid Bulb Tag Names 4AGEL 4AYEL 4AREL Text	D	G				the signal must clear to S&P     These Routes Use     Timed Single Track Restore	Opposing Routes must Clear to Restricting or S&P. for Opposing Routes only.
B 4BREL Text	E	н				VHLC & ACE Only Remove both check marks to use th default, which is selected by the "Interlocking" menu	e
С	F	L				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	

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:





# **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)

MCINTOSH [ C:)	VSLS\MCINTOSH\S	IM\MCINTOSH.D2K ] CSX Code 1 &	k 6 - NORAC,	Abs, High, Colorlight			
Drawing Options	Tag Names & Set	Coded Circuit Properties					
Save	Toolbar On/Off C	Inputs		Outputs		Track Name 221	Create Tag Names Using Defaults OK
↓ ↓	MCINTOSH	2TKI1 212	1	1 2TKO1 2 2TKO2	2	Track Display 2ZLOSTMR	
. •		212	2	3	2	Track Control 2TKI1	Cancel
NORTH	N			4		Route	
		2TKI5	5	5		T toute	
<b>←1</b> 267	271	2TKI6	6	6 2TKO6	6	Do not show a red background when multiple vital Codes In or Codes Out are on.	
→12567M		217	7	7 2TKO7	7	vital Codes In or Codes Out are on.	West or North
				8		Click below to use the tags from this board	I East or South
$\leftarrow$ <b>12</b> 46	6ZT   6	2TKIM	M	10		[1] MCINTOSH TC_1 [1] MCINTOSH TC_2	Foreign Rail Road
→12567M	'⊢ <b>●</b>			11		[1] MCINTOSH TC_3	Click here to use the default
				12			railroad or select a foreign railroad , below.
				13			The foreign railroad applies to
2TE 0/600			_	14			this coded track only.
4TE 0/600	DLVY			16			AKRR AMTRAK
6TE 0/600 2TPTE 15/15	C1NV C1RV			17		<	<ul> <li>BNSF</li> </ul>
2ZLOSTE 4/-				18		·	BNSF - SF CAL Train
4ZLOSTE 4/				19		Track Block	- CN - Illinois RR
6ZLOSTE 4/4				20		Status 2TBK	CONRAIL CPR
	C2TB			21		Office Request C2TBS	CRTA
	C2TB C4TB			22			CSX Code 1 & 2 CSX Code 1 & 6
	C4TB C4TB			24		Office Cancel C2TBSO	CTA-Calgary
	С6ТВ			25		LCP Request LP2TBON	CTA-Chicago DART
	С6ТВ			26		LCP Cancel	FEC
				27			KCS
<				28		- Drop Coded Inputs - Show Track Nam	LIRR MARTA
Ready				29		When Code 1 Down With Coded Circl	MBCR
				30		, ,	METRA - Chicago METRA - LA
		Copy Selected Tags to Coded Inputs		Copy Selected Tags to Coded Outputs		Following Stick	Metro North
		Coued inputs		Coued Outputs		- ,	NICTD NJT
						Engine Return	Norfolk Southern
							Norfolk Western SCRRA
							SEPTA TRIMET
							UP
							WMATA
							Demo RR
							1
		$\leftarrow \rightarrow$	$\leftarrow$	$\rightarrow$ $\uparrow \downarrow$ $\downarrow \uparrow$			
		$\rightarrow$ $\leftarrow$	$\rightarrow$	$\xrightarrow{\rightarrow}$	$\downarrow \uparrow \uparrow \downarrow$		

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

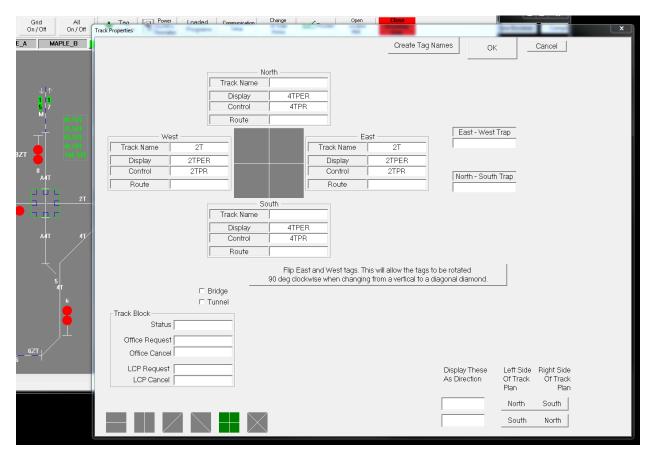
Abbreviated code values are displayed on the track plan (e.g., 1 2 5 6 7 M)

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)

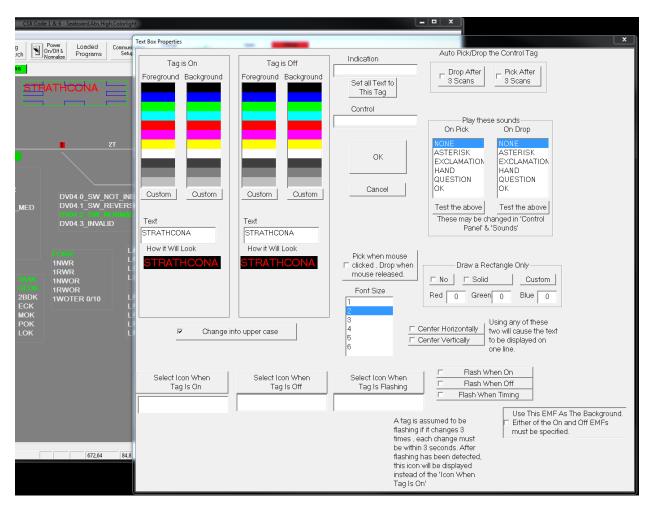
The previous screen captures provide some typical examples of how these fields are set; your actual situation may vary.

# **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:

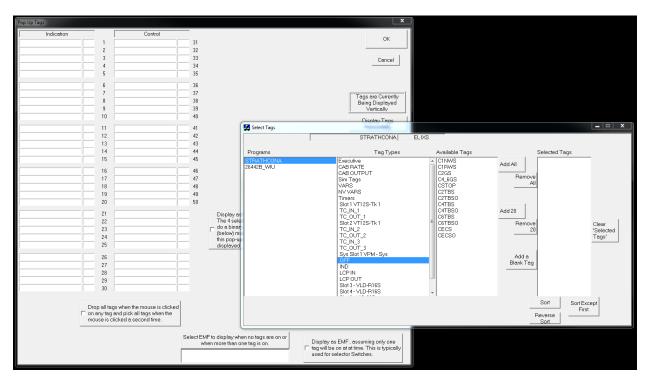


Right click to add tags using the dialog:

Datasety Specific Taylores & Balance Mark Mark       Description Taylores & Balance Mark Mark       Description Taylores & Balance Mark       OK         Concell       The Specific Taylores & Concell on Taylores & C	STRATHCONA [C:\VSLS_PROJECTS\ST	TRATHCONA\SIM\STR	ATHCONA.D2K ] CSX Code	1 & 6 - Seaboard,Abs,High,Colori	Pop Up Tags			- <u>~</u>	<b>1</b> 5	<b>— X —</b>
Same       Toology	Drawing Options Tag Names & Setup	Interlocking All			Indication		Central	_		
Zedd29 W0 STRATHCOMA 2010 Program     Zedd29 W0 STRATHCOMA 2010 Program     Zedd29 W0 STRATHCOMA     Zedd29 W0 STRAT	Toolbar Test, On/Off & Mo	/Edit 🖌 🚼 🚼 Tag	ch Power Loan		LP1NWK	1	Control			ОК
V VARAGe WW       STRATHOUNA       Introduce         V VV ALSR 2 4627R MLSR 2 027R MLSR 2 000 MLSR 2 027R MLSR										Cancel
Image: Streat H-CONA       Streat H-CONA         Image: Streat H-CONA       Image: Streat H-CONA         Image: Streat H-CONA	↓ 26442B_WIU	STRATHCONA	All Programs							
Draw       2-dc/27R       STRATHCONA       PCSA       2-d       2-d <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>- Hido Tago</td>										- Hido Tago
LLSR       CGCPR       DVM 2.SW. NORMAL       DV22.SW. NORMAL		10700			LP2GK	5		35		
RLSR       6 2027R       VV01 2_SVV_NORMUL       DV02 4 BV01 2_SVV_NORMUL       DV02 4_SVV_NORMUL       DV02 4_SVVV_NORMUL       D	DLVY ZLSR Z	4GZPR			LP4_6GK	6		36		I Up I Down
					LPTEK	7		37		Teas are Currently
2COOLED       ∠ [23]7       2       2       2       1       40         2COOLED       ∠ [23]7       2       2       1       40       40         2COOLED       ∠ [23]7       2       2       40       40       40         2COOLED       ∠ [25]256_M RF       1       40       40       40       40         2COSEL       2COOLED       2COOLED       2COOLED       2COOLED       40       40       40         2COSES       2CORED       2COOLED       2COOLED       2COOLED       2COOLED       2COOLED       2COOLED       2COOLED       2COOLED       2COOLED       40 <td< td=""><td></td><td></td><td>DV04.2_SW_NORM</td><td>AL DV02.3_C</td><td>LP2TBK</td><td>8</td><td></td><td></td><td></td><td></td></td<>			DV04.2_SW_NORM	AL DV02.3_C	LP2TBK	8				
20016       CB233       2					LP4TBK					Vertically
Cited 19       Cited 19 <td< td=""><td>12000DE6 11</td><td></td><td></td><td></td><td>LP6TBK</td><td>10</td><td></td><td>40</td><td></td><td>Display Tags</td></td<>	12000DE6 11				LP6TBK	10		40		Display Tags
PV01 23_STOP       PAX       12       42         PAX       13       43         PAX       14       44         PAX       15       44         PAX       16       46         PAX       16       46         PAX       17       47         PAX       18       46         PAX       128       18 <tr< td=""><td></td><td>2</td><td>1</td><td>2T</td><td>LP2TK</td><td>11</td><td></td><td>41</td><td></td><td>Horizontally</td></tr<>		2	1	2T	LP2TK	11		41		Horizontally
UV01 23_STOP       UPAK       13       43         22622KTE 0/2       2TE 0/363       6TE 0/309       UV03 23         C1NVS CATBSO C1RWS C6TBS C6R 05 CECS C6R 05 CECS C6TBSO C4 603 CECS C6TBSO C4 603 CECS C7TBSO       INWK 4TBK 28DK TWVR TWWR TWWR TWWR TWWR TWWR TWWR TWWR	→12567MRF	-000								
26/25/KTE 0/2       2TE 0/263 4 6/225/KTE 0/2       6TE 0/309 4 6/225/KTE 0/2       6TE 0/309 4 6/225/KTE 0/2       0       15       46 16       46 17       16       46 17       16       1	DV01	.23 STOP				13		43		
24:63/25/KTE 0/2       2TE 0/309       6TE 0/309       6TE 0/309       FGFD/K       16       46         4:63/25/KTE 0/2       2TE 0/309       6TE 0/309       FGFD/K       17       47         PPOK       18       49       49       49       49       6TE 0/309       FORM with list 100 with li					LP6AK	14		44		around tags
2262SKTE 0/2       27E 0/363       6TE 0/309       6TE 0/309       FORM       16       46         4       662SKTE 0/2       27E 0/363       6TE 0/309       FORM       17       46         0260K       17       17       46       48       48       48         0260K       17       18       48       48       48       48         0260K       17       18       48       49       49       60       49       60       6					LP2AAK	15		45		Allow only the last
4 6625KTE 0/2       4TE 0/309       0V03 29       0V03 20       0	2GZSKTE 0/2 2TE 0/36	63 6TF 0/	309		L DOFDY	10		- 40		
CINWS CATBSO CIRWS CATBSO CIRWS CATBSO CAS CERSO CAS CER				DV03.23						
C1NWS C4TBSO C1RWS C6TBSO C4 field C5CS C4 field C5CS C5 TD C4CSO C4 field C5CS C4										
C1RWS C6TBS C2GS C6TBS C4 66S CECS C3TOP C6C       IRWR 6TBK ECK IRWR       ILVSTART LP1RW       DECK       20       50         C4 66S CECS C3TOP C6C       INUK 2AK POK 2GTBSO C4 66S CALL       ILVSTART LP1RW       DECK       20       50         C3TOP C6CS C3TOP C6C       IRWR 4AK LOK 16GK 6AK       IRWR       LVSTART LP1RW       DECK       21       Investigation       Conter Holizontally         CATBS       IRWR 6FDK       CALL IN LP2SS 160       DECK       23       Investigation       Investigation       Conter Holizontally       Conter Holizontally         CATBS       IRWR 6FDK       CALL IN LP2SS 160       Investigation       Investigation       Investigation       Investigation       Conter Holizontally       Conter Holizontally         CATBS       INVER 2AK 27BK 6FDK       Investigation       Investigation       Investigation       Investigation       Investigation       Conter Holizontally       Conte	CINWS CATRSO INWK	ATRK 2RDK	POKR	LAMPTEST LPINW						
C2CSS       C6H3SO       CMUX       27K MOK       INVOR         C4H3SO       CSCSO       INKVR       INVOR       INVOR         CSCHSSO       INKVR       INVOR       INVOR       INVOR         CSCHSSO       IFK       24K       C2       INVOR         IFK       24K       C2       INVOR       INVOR         IFK       24K       C2       INVOR       INVOR         IFK       24K       C2       INVOR       INVOR         IFK       24K       C4       INVOR       INVOR         IFK       104 (6K)       122 (K       C4       INVOR       INVOR         IFK       24K       C4       INVOR       INVOR       INVOR       INVOR         IFK       C4       C4       INVOR       INVOR       INVOR       INVOR       INVOR         IFK       C4       C4       INVOR       INVOR       INVO	C1RWS C6TBS 1RWK	6TBK ECK	1NWR	LPSTART LP1RW						mouse released.
CSTOP CECSO (ZTBS)       2GK 4AK LOK (EXCHES)       1RWOR TEK 2AKK 2TEK 2AKK       1PNWK LOTEK (WOTER 010)       1PNWK LOTEK (PNWK LOTEK (PTWWK LO								50		Center Horizontally
C2TBS C2TBS C4TBS       1 GGK 6AK EXAMPLE       1 PTEK Princk       2 1 ENICK       2 1 ENICK       2 1 ENICK       1 PTEK 2 2 ENICK       2 1 ENICK       1 PTEK 2 2 ENICK       2 1 ENICK       1 PTEK 2 2 ENICK       1 P	C4_6CS CECS 1NJK	2AK POK	1NWOR	LCHEALTH LP4_6G						
C2TBSO       TEK       2AAK       CPTRWK       P2TBK       C4       C4<	COTRS 4 6GK	AAK LOK		LP1NWK LPTEK					I he 4 select tags (Control - Above) will be used to do a binary select of the EME. The 5 enable tags	Copy Selected Tags
C4TBS     2TBK GFDK     Clear All Tags       LP4 BGK     LP4 BGK     28       LP4 BGK     LP2 K       LP4 BGK     LP4 BGK <td< td=""><td></td><td></td><td></td><td></td><td>LPINDK</td><td></td><td></td><td>_</td><td>(below) must be in the selected states , otherwise</td><td></td></td<>					LPINDK			_	(below) must be in the selected states , otherwise	
LP20K       LP21K       26       LP21K       LP	C4TBS 2TBK	GFDK						_		
UP4_6GK       UP2AK       26       Image: Constraint of the co						25			displayed.	Clear All Tags
Drop all tags when the mouse is clicked on any tag and pick all tags when the mouse is clicked a second time.						26				
29         30         Drop all tags when the mouse is clicked         on any tag and pick all tags when the mouse is clicked a second time.         Select EMF to display when no tags are on or when more than one tag is on.         Display as EMF, assuming only one tag is on.						27				Normal Font
30 Drop all togs when the mouse is clicked □ on any tog and pick all togs when the mouse is clicked a second time. Select EMF to display when no togs are on or when more than one tag is on. Display as EMF, assuming only one I tog will be on at at time. This is typically										
Drop all tags when the mouse is clicked one ary tag and pick all lags when the mouse is clicked a second time. Select EMF to display when no tags are on or when more than one tag is on. Display as EMF, assuming only one to any tag and pick all tags when no tags are on or when more than one tag is on.										
on any tag and pick all tags when the     mouse is clicked a second time.      Select EMF to display when no tags are on or     when more than one tag is on.      Display as EMF, assuming only one     Tag will be on at at time. This is typically						30				
						□ on any tag and	pick all tags when the ed a second time.		en more than one tag is on. Display as EM	t at time. This is typically

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.)

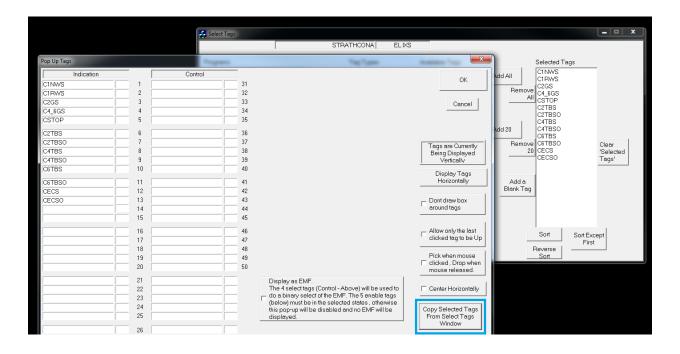


Groups of tags can be added quickly by using the select tags dialog:

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

		Display Tags			
ſ	Select Tags				
l		STRATHCONA	ELIXS		
L	Programs	Tag Types	Available Tags	Selected Tags	
as le nu li	STRATHCONA 26442B_WIU	Executive CAB RATE CAB OUTPUT Sim Tags VARS NV VARS Timers Slot 1 VTI 2S-Tk 1 TC_IN_1 TC_OUT_1 Slot 2 VTI 2S-Tk 1 TC_OUT_1 Slot 2 VTI 2S-Tk 1 TC_IN_2 TC_OUT_2 TC_IN_3 TC_OUT_2 TC_IN_3 TC_OUT_3 Sys Slot 1 VPM - Sys OFF IND LCP IN LCP OUT Slot 3 - VLD-R16S Slot 4 - VLD-R16S		Add All Remove All Add 20 Add 20 Add a Blank Tag	Clear 'Selected Tags'
				Sort Exc First Sort	

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)



### 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"

	STRATHCONA [C:\VSLS_PROJECTS\STRATHCONA\SIM\STRATHCONA.D2K] CSX Code 1 & 6 - Seaboard,Abs,High,Colorlight									
Dra	wing Options Tag Names & Se	etup Interlo	ocking All Help							
	New	Ctrl+N	All Tag Power Loaded Communication Change Open ConvOff Search Programs Setup Ucation	Close Drawing						
	Open	Ctrl+O	On / Off Search On/orr Programs Setup On State Model MDB	Only						
	Save	Ctrl+S	THCONA All Programs							
	Save As									
	Save As - Fence Rectangle		STRATHCONA							
	Append From Drawing		2LSR 2 6GZPR							
	Delete Fence Rectangle	•	Delete Fence Rectangle 4 2GZPR							
	Move Tool Bar to 0,0		6_2GZPR							
			4C	ODE6						
	Save I/O & Status		$_{37}$ Z Clr 11 2T $-7521 \rightarrow$							
	Restore I/O & Status		37MRF 4 M765421RF -							
	Recently Opened Track Plans	+								
	Exit And Then Restart									
	Exit			CODE6						
			6 M65321RF ←							

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.

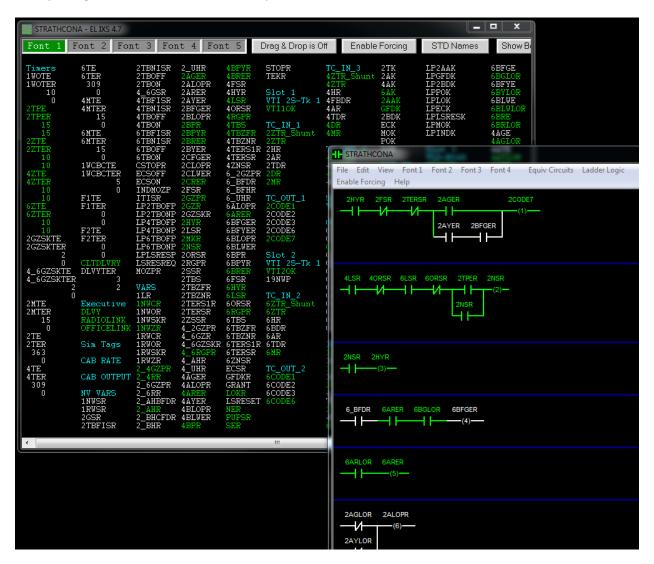
The following is an example flyover status display for a 2 headed color light signal:

4AGLO	2TP	4TE 0/600	4AYEL
4AYLO	2T_IN	4LS	4AREL
4ARLO	C4GS	4GZ	4BREL
4BGLO	CSTOP	4RGP	
-4BYLO	LP4GS	4ORS	4BFGEL
4BRLO	LPSTOP	4AGEL	4BFYEL
		2 <mark>1</mark> →	
4	Cir M <mark>7</mark> 6 <mark>5</mark>	2 <u>1</u> ←	

# 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:

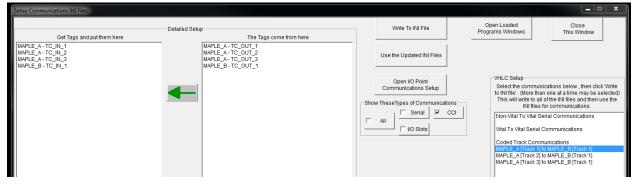
# **Multi-Controller Locations – Communications Setup**

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:

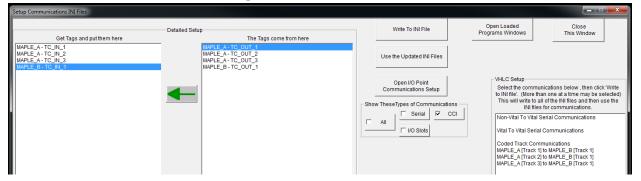
- Track circuits
- I/O Slots
- Serial Links
- Point-to-point (wires)
- GE Harmon VHLC (Vital –NV)

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

Setup Communications INI Files							×
Get Tags and put them here	Detailed Setup The Tags come from here	1	Write To INI File		Open Loaded Programs Windows	Close This Window	
Get Tags and put them here [IVO] MAPLE_A -SLOT 3 VLD-R18S [IVO] MAPLE_A -SLOT 3 VLD-R18S [IVO] MAPLE_A -SLOT 3 VLD-R18S [IVO] MAPLE_B -SLOT 3 VLD-R18S [IVO] MAPLE_B -SLOT 2 VLD-R18S [IVO] MAPLE_B -SLOT 2 VLD-R18S [IVO] MAPLE_B -SLOT 3 VIO-86S [IVO] MAPLE_B -SLOT 4 VIO-86S	IIO         MAPELE, A - SLOT 3 (OFD)           IIO         MAPELE, A - SLOT 3 (JLCR16S)           IIO         MAPELE, A - SLOT 3 (JLCR16S)           IIO         MAPELE, A - SLOT 3 (JLCR16S)           IIO         MAPELE, B - SLOT 4 (JCR16S)           IIO         MAPELE, B - SLOT 2 (JLCR16S)           IIO         MAPLE, B - SLOT 3 (JCR16S)           IIO         MAPLE, B - SLOT 3 (JCR16S)           IIO         MAPLE, B - SLOT 3 (JCR16S)           IIO         MAPLE, B - SLOT 3 (JCR16S)		Use the Updated INI Files Open I/O Point Communications Setup TheseTypes of Communicati All VIO Siots	ions CCI	to INI file'. (More This will write I INI I Vital To Vital To Vital To Vital To Vital Se Coded Track C MAPLE_A[Trac MAPLE_A[Trac	munications below, then cl than one at a time may be al of the NI files and there lies for communications. al Serial Communications rital Communications ommunications with to MAPLE B [Track 1] K 2] to MAPLE B [Track 1] K 2] to MAPLE B [Track 1]	selected)

# **Serial Communications Setup**

Setup Communications INI Files			
Get Tags and put them here	— Detailed Setup — The Tags come from here	Write To INI File	Open Loaded Close Programs Windows This Window
MAPLE, A-LOP N.           MAPLE, A-OFF           MAPLE, A-SOFT 3 REMOTE 1 NPUTS           MAPLE, A-SLOT 1 VT1 28-TK 1           MAPLE, A-SLOT 2 VT1 28-TK 1           MAPLE, A-SLOT 2 VT1 28-TK 2           MAPLE, A-SLOT 2 VT1 28-TK 2           MAPLE, A-SLOT 2 VT1 28-TK 2           MAPLE, A-SPORT 2 NEWDER 1           MAPLE, B-OFF           MAPLE, B-OFF 3 REMOTE 1 NPUTS           MAPLE, B-SLOT 1 VT1 28-TK 1           MAPLE, B-SIN SLOT 1 VPM - SYS	MAPLE A - IND MAPLE A - LOP OUT MAPLE A - PORT 3 REMOTE 1 OUTPUTS MAPLE A - SLOT 2 VIT 25-TK 1 MAPLE A - SLOT 2 VIT 25-TK 1 MAPLE A - SYS SLOT 1 VPM - SYS MAPLE B - LOP OUT MAPLE B - SUC 1 VIT 25-TK 1 MAPLE B - SYS SLOT 1 VPM - SYS	Use the Updated INI Files Open I/O Point Communications Setup Show TheseTypes of Communications           For Serial         CCI           Image: Communication Setup         Image: Communications Setup	VHLC Setup Select the communications below , then click 'Write to IN file', (More than one at a time may be selected) This will write to all of the INI files and then use the INI files for communications. Non-Vital To Vital Serial Communications Vital To Vital Serial Communications Coded Track Communications MAPLE_A (Track 1) to MAPLE_B (Track 1) MAPLE_A (Track 1) MAPLE_B (Track 1) MAPLE_A (Track 3) to MAPLE_B (Track 1)

### **Point-to-Point Communications Setup**

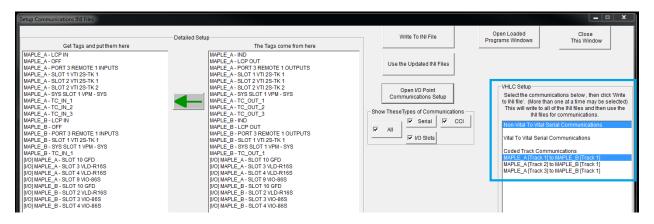
From the lists provided, select an Output program and an Input program; then enter Input and Output tag pairs. (Suggestion: Use the TagList window Drag & Drop feature to quickly select and enter tags on the I/O Point Communications Setup).

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

I/O Point Communications Se	etup						x
Select Program For [1] MAPLE_A [1] MAPLE_B	r Inputs	Select Program For Outputs ] MAPLE_A	Save and Use The New Communications	Communications Setup	Show Search Window	Close This Window	ŕ
[]]MAPLE_B		JMAPLE_B			Inputs	Outputs	
Edit the INI for the above.	Show Tag List window L	Show Tag ist window	Outputs				
							II

### **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)

STRATHCONA - Power Off / Normalize		0 00700	X
Select programs to Power Off or On and then click the "Power Off or On" Button Power Off or On Select All		click the Norm program nam	ms to Normalize and then alize Button. Right click a e to select individual tags o normalize. Remove All Invert
When the 'Power Off or On' button is clicked :		Normalize	Select All
Programs that are hilighted will be powered Down.		26442B_WIU STRATHCON	A
Programs that are not hilighted will be powered Up.			
26442B_WIU STRATHCONA	Close This Window		
Always Exclude These Programs 26442B_WIU STRATHCONA		Always Exc 26442B_WIU STRATHCON	clude These Programs

Select Tags To Normalize	In Program STRATHCON	A		×
VTI10K	Pick	4BRLOR	Pick	ок
VTI2OK	Pick	POKR	Pick	
VLD3OK	Pick	1NJPR	Pick	
VLD40K	Pick		Pick	Save Changes
2AGLOR	Pick		Pick	Normalize Tags As They
2AYLOR	Pick		Pick	Are In This Window
2ARLOR	Pick		Pick	Show
2BGLOR	Pick		Pick	'Tag Search' Window
2BYLOR	Pick		Pick	Momentary On & Off are
2BRLOR	Pick		Pick	for 3 seconds
J		]		
2CGLOR	Pick		Pick	Pick
2CLWLOR	Pick		Pick	Pick
6ARLOR	Pick		Pick	Pick
6BGLOR	Pick		Pick	Pick
6BYLOR	Pick		Pick	Pick
6BLWLOR	Pick		Pick	Pick
4AGLOR	Pick		Pick	Pick
4AYLOR	Pick		Pick	Pick
4ARLOR	Pick		Pick	Pick
4BLWLOR	Pick		Pick	Pick
1		1		

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):

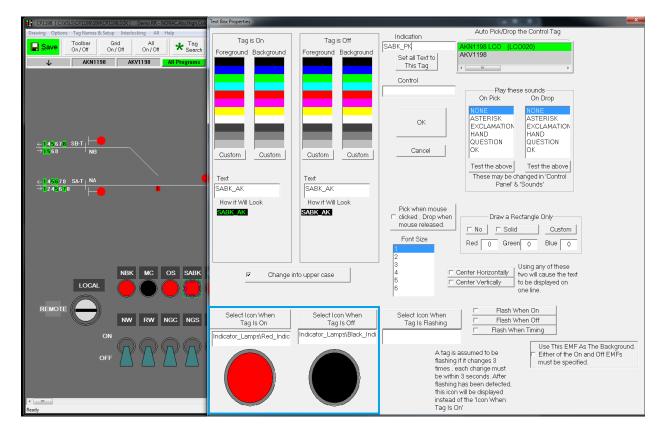
STRATHCONA - EL IXS 4.7			
Font 1 Font 2 Font 3 Font 4 Font 5 Drag&Drop is ON	Enable Forcing STD Names Show B		
Timers         6TE         2TENTSR         2.UHR         4BPVR         STOPR         TC           1WOTE         5TER         2TBOR         2AGER         ABEVER         TCOP         TCOP <td>IN_3 2TK LP2AAK 6BFGE R_Shunt 2AK LPGFDK 6BGLOR R 4AK LP2BDK 6BFYE</td> <td>Select Tags To Normalize In Program STRATHCONA</td> <td></td>	IN_3 2TK LP2AAK 6BFGE R_Shunt 2AK LPGFDK 6BGLOR R 4AK LP2BDK 6BFYE	Select Tags To Normalize In Program STRATHCONA	
1007ER 3009 27BOM 24LOPR 4FSR 4771 10 0 4 4565R 24LPR 4FYR SLot 1 4HR 0 4MTE 47BFISR 24VER 4LSR VTI 25-Tk 1 4FR 2TTE 4MTER 4TBHISR 24VER 4LSR VTI 25-Tk 1 4FR	A GAK TPPOK GRATOR	VTI10K Pick	4BRLOR Pick
2TPER 15 4TBOFF 2BLOPR 4RGPR 4TDF 15 0 4TBON 2BPR 4TBS TC_IN_1 4DR	OR 2BDK LPLSRESK 6BRE ECK LPMOK 6BRLOR	VTI2OK Pick	POKR Pick
15 6MTE 6TBFISR 2BPYR 4TBZFR 2ZTR Shunt 4MR 2ZTE 6MTER 6TBNISR 2BRER 4TBZNR 2ZTR 2ZTER 15 6TBOFF 2BYER 4TBRSNR 2HR TC (	POK 4AGLOR	VLD3OK Pick	1NJPR Pick
227ER 0015 67E0FF 2BVER 41EESIR 2HR TCC 10 0 67E0N 25VER 41EESIR 2HR 4CO 10 1VCRCTE CSTOPR 2CLOPR 42NSR 2TDR 4CO 42TE 1VCRCTE DCSOPF 2CLUER 6.26ZPR 2DR 4CO	DE1 VLD-R16S 4AYLOR	VLD40K Pick	Pick
4ZTER 5 ECSON 2CRER 6_BFDR 2MR 4COI	DDE7 IPSTART 2VSTOPP 4BIWE	2AGLOR Pick	Pick
IL 67TE ELTER LE2TBOER 267R 6ALORE 2CODEL VEN	Slot 1 REMOTEIN SLT3 2 GRANT 4BRE - Sys INVERT 2AGE 4BRLOR LCHEALTH 2AGLOR		Pick
10 F2TE LP4TBONP 2LSR 6BFYER 2CODE6 C1NU 2GZSKTE F2TER LP6TBOFP 2MKR 6BLOPP 2CODE7 C1PU	7 IPINWS 2AVE Slot 9 WS IPIRWS 2AVLOR VIO-865 WS IP2GS 2ARE VIO90K	2AYLOR Pick	Pick
2GZSKTER 0 IP6TBONP 2NSR 6BIVER C2CC 2 0 IP1SRESP 20RSR 6BPR Slot 2 C4 ( 0 CITDIVRY LSRESREQ 2RGPR 6BPYR VII 2S-TK 1 CST		2BGLOR Pick	Pick
4_6GZSKTE DLVYTER MOZPR 2SSR 6BRER VTI2OK C2TH 4_6GZSKTER 3 2TBS 6FSR 19NWP C2TH	BS LP4TBZ ZBYE IN PR III	2BYLOR Pick	Pick
2 0 WARS 2TEZER 6HWR C4TT 0 1LR 2TEZER 6LSE TC_IN_2 C4TT 2MTE Executive 1NWCR 2TEENER 60SSR 62TR_Shunt C6TT	ESO INDONLY ZERLOR INWR ZES ZCFGE IRWR	2BRLOR Pick	Pick
2MTER DLVY 1NVOR 2TERSR 6RGPR 6ZTR C6TR	IBSO LCP OUT 2CGLOR IS LP1NVK 2CLVE Slot 10	ZURLOR	
0 OFFICELINK INVER 4 262PR 6TEPER 6EDR CECC 2TE 1RVCR 4 652R 5TEPER 6AR 2TER Sim Tags INVOR 4 652RK 5TERSIR 6TDR IND 363 1RVSR 4 642RK 5TERSIR 6TDR INV 0 CAB RATE 1RVZR 4 ANR 5TERSR 6HR INV	IP1LK 2CRE	2CGLOR Pick	Pick
4TE 2 4GZPR 4 IIHR ECSR TC OUT 2 11K	LPTEK VLD-R16S	2CLWLOR Pick	Pick
0 NV VARS 2 6RR 4ALOPR GRANT 6CODE2 2GK 0 NV VARS 2 6RR 4ARER LOKR 6CODE3 4 60	LP4TBK 6VSTOP	6ARLOR Pick	Pick
1NWSR 2_AHBFDR 4AYER LSRESET 6CODE6 TEK 1RWSR 2_AHR 4BLOPR NER 2TH 2GSR 2_BHCFDR 4BLUER PUPSR 4TB	K LP2AK SLT4 2 GRANT	6BGLOR Pick	Pick
2TBFISR 2_BHR 4BPR SER 6TB	3K LP6AK 6ARLOR	6BYLOR Pick	Pick
STRATHCONA - Power Off / Normalize	×	6BLWLOR Pick	Pick
	ect programs to Normalize and then	4AGLOR Pick	Pick
dick the "Power Off or Op" Button Click	k the Normalize Button. Right click a ogram name to select individual tags	4AYLOR Pick	Pick
Power Remove All Invert	to normalize.		Pick
Off or On Select All	Remove All	4ARLOR Pick 4BLWLOR Pick	Pick
When the 'Power Off or On' button is clicked :	rmalize Select All All	HOLWEON	
Programs that are hilighted will be powered Down. 264-	142B_WIU		
	RATHCONA		
26442B_WIU			
STRATHCONA			

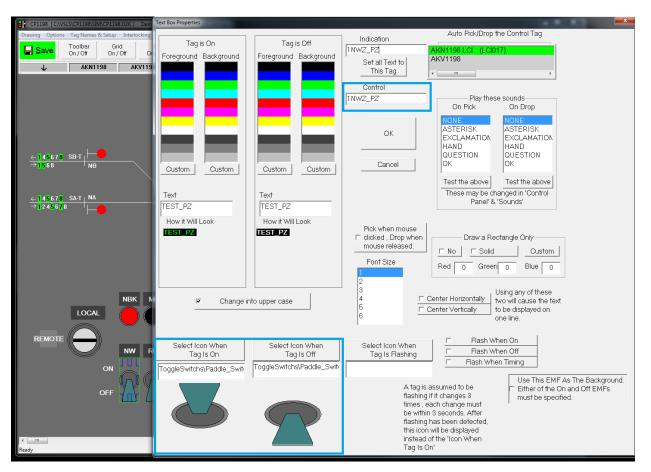
# **Creating a Local Control Panel**

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

	LOCAL CONTROL PANEL	
LOCAL	NBK MC OS SABK LOK SBBK NWC RWC SG SR NG NR SM 1TE POK LR	LAMP TEST
	NW RW NGC NGS SGC SGS SMON SMOFF	$\Theta$
OFF		

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.

Organize 🔻 🔭 Open Ir	nclude in l	ibrary 🔻 Share with 💌 Bur	n New folder			
🔆 Favorites	<u>^</u>	Name	Date modified	Туре	Size	
🧮 Desktop		퉬 AAR Terminals	13/04/2011 9:38 AM	File folder		
🐌 Downloads	E	\mu Bulbs	13/04/2011 9:38 AM	File folder		
🖳 Recent Places		🌗 Digits	13/04/2011 9:38 AM	File folder		
퉬 Projects		Indicator_Lamps	13/04/2011 9:38 AM	File folder		
퉬 VSLS		퉬 KeySwitch	13/04/2011 9:38 AM	File folder		
퉬 WiX		퉬 lcp	13/04/2011 9:38 AM	File folder		
		퉬 Misc	13/04/2011 9:38 AM	File folder		
🧾 Desktop		Rotary_Switchs	13/04/2011 9:38 AM	File folder		
🥃 Libraries		Small_LEDs	13/04/2011 9:38 AM	File folder		
Documents		ToggleSwitchs	13/04/2011 9:38 AM	File folder		
👌 Music		퉬 Traffic	13/04/2011 9:38 AM	File folder		
Pictures						
😸 Videos						
🙀 fred	Ψ.					

# 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.

AUTO_:	Font 2		ont 4 Font	5 Drag & D	rop is Off	Enable Forcing     STD Names     Show Boolean     Compile     122/9600
Timers           AFPTER           AFPTER           AFPTER           AFPTER           AFDTER           AFDTER           AFDTER           B           O           AFDTER           B           Executiv           TRUE           Sim Tags           LLYLE           LSSNG           RCISH           RCSSH           VARS           EC4TRK           TK12           LTK12           LTK02           LTK03           LTK08	AUTO_2- Font 1  imers  APTE  8  9  AFTE  8  9  AFTE  8  9  Executive  TNUE  Sin Tags LIVIO LIVEL LIVIO LIVEL LISUG LCSW  CCSW  VARS  ECATRK  TC_IN_1 LIVEL LTKI2 LTKI2 LTKI3 LTKI2 LTKI3 LTKI5 LTKK5 LTKK5 LTKK5 LTKK5 LTKK5 LTKK5 LTKK5 LTKK5 LTKK5	Font         2         F           TC_IN2         Shur RTK11         Shur RTK12           RTK11_Shur RTK13         RTK14         RTK14           RTK14         RTK16         RTK17           RTK15         RTK16         RTK17           RTK16         RTK17         RTK18           TC_OUT_2         RTK07         RTK07           RTK08         ECAAUX         LAUX           LAUX         RUX09         RTK07           RTK08         ECAAUX         LAUX           DOR         LAUX         RBAPLI           LAIC         RAUX         0	Font 3 Font	EUXS_AP           Font 1           Font 1           Timers           INOTE           INOTE           INOTE           100           0           2TPE           2TFE           2TFE           22TE           0           4ZTE           0           6ZTE           0           6ZTE           0           0           2CTE           0           0           6ZTE           0           4ZTE           0           4ZTE           0           4ZTE           0           4ZTE           0           4ZTE           0           4ZCTE           0           4_G6ZSKTE           4_G6ZSKTE           4_G6ZSKTE	Font 2         For           4MTE         6           4MTE         6           15         6           0         6           0         6           15         6           0         6           0         15           0         15           0         15           11         15           11         11           11         11           11         11           11         11           11         11           11         11           11         11           11         11           11         11           11         11           11         11           11         11           11         11           11         11           0LVYTE         11           0LVYTE         11           0LVTE         11           0LVTE         11           0LVTE         11           0LVTE         11           0LVTE         11           0LVTE         11	007       (VALIDATION CRC 1B5DEB1E UNCOMPRESSED S1 EPROM, V-EPT CRC 7A30, V-EPT CHECKSUM D787)         Font 3       Font 4       Font 5       Drag & Drop is Off       Enable Forcing       STD Names       Show Boolean       Compile         1       Font 4       Font 5       Drag & Drop is Off       Enable Forcing       STD Names       Show Boolean       Compile         1       Font 4       Font 5       Drag & Drop is Off       Enable Forcing       STD Names       Show Boolean       Compile         1       Font 4       Font 5       Drag & Drop is Off       Enable Forcing       STD Names       Show Boolean       Compile         1       Granize *       Open       Burn       New folder       Date modified       Type         1       HP_TOOLS (E)       Image Shortcut_Autol       Image Shortcut_Autol       Pervious Versions       Shortcut_Autol         1       Font 4       Shortcut_Autol       Shortcut_Autol       Shortcut_Autol       Image type:       GETS EC4 BiTMAP.SEL data file         1       Shortcut       Shortcut       Size: 655 Bytes       Stat in:       C:VSLSVAuto_1       Shortcut_Auto1         1       Shortcut for       Name       Shortcut key:       None       Stat in:       C:VSLSVAuto_1       Shortcut key:       Sho
		3	RSCAN LSAPR LSTK RSAPR	6TE 6TER 309 0	2TBOFF 2 2TBON 2 4_6GSR 2 4TBFISR 2 4TBNISR 2 4TBOFF 2	Zave     Image: Control Panel     Image: ALS.MAP       Zave     Image: Control Panel     Image: ALS.MAP       Zave     Image: Control Panel     Image: BITMAP.SEL       Zave     Image: Control Panel     Image: BITMAP.SEL       Zave     Image: Control Panel     Image: BITMAP.SEL       Zave     Image: Control Panel     Image: Control Panel       Zave     Image: Cont

### **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.

STR4	THCONA [C:\VSLS_PROJECTS\STRATHCO	DNA\SIM\STRATHCONA.D2K ] CSX Code 1 & 0	6 - Seaboard,Abs,High,Colorlight		- <b>-</b> ×	
Drawing	Options Tag Names & Setup Interlo					
	ave On / Off On / Off	All Tag On / Off Search Normal	t Loaded Communication te Programs Setup	Change Open Of State Router Location History MDB	Close Drawing Only	
	↓ 26442B_WIU STR/	ATHCONA All Programs				
		21	●● -  4			
			••-			
			6			
	STRATHCONA - Router					
	Get Routes	Display Drawing Monochrome		Element InterConnection Details	Disconnected	Show Crossovers Switchs with the same Office Request
	Save Routes to Data Base	Hide CL Heads & Hide Track Insulated Joints Names		1 4ZTR_SHUNT CC 2TPER 1 6ZTR_SHUNT CC 2TPER	0 With No Connections	_ Show an X at
	Screen Dump Routes	Show Equivalent Track Length		2 2TPER CL 2 2ZTR_SHUNT 2TF 2 2TPER CL 4 2TPER 4ZTR_SHU		disconnected points
	Open Location MDB	Re Draw Switches & Signals		2 2TPER CL 6 2TPER 6ZTR_SHL 2 2TPER TK 2TPER 2TPER	3 Tracks	
	Click on a switch name below to tog	gle the switch between Locked and Un Lock	ked.	2 2TPER TK 2TPER 2TPER 2 2TPER TK 2TPER 2TPER 2 2TPER TK 2TPER 2TPER	0 Signals	
	Switches in the route are show in (	dark red. Red = Locked , Grey = Un Locke	ed	32TPER SW1 2TPER 2TPER 2	0 Switches	Get All Interconnections
					0 Diamonds	Check for overlaps
					Hide All	
						Show Extra
∢ Ready		UnderTest es 4TotalRoutes	0 Inactive (Over And Bi			G Show Simple Routes
	1.2 to 41-N					
	2. 2 to 6 1-R 3. 4 to 2 1-N					
	4. 6 to 2 1-R					
			→			

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:

STRAT	THCONA [C:\VSLS_PROJECTS\STRATHCOM	NA\SIM\STRATHCONA.D2K ] CSX Code	e 1 & 6 - Seaboard,Abs,High,Colorlight			<b>— — X</b>	
Drawing	Options Tag Names & Setup Interloc	king All Help					
		All On/Off Kearch	Power Loaded Communicatio Dn/Dff & Programs Setup	n Change Of State History Rou	Open Location MDB	Close Drawing Only	
8		R at		8		<	
	STRATHCONA - Router						
		Display Drawing Hide CL Heads & Insulated Joints Show Equivalent Track Lengt Re Draw Switches & Signals ggle the switch between Locked and L dark red. Red = Locked , Grey = Un	h Jn Locked.	ElementInterCon 1 22TR, SHUNT C 1 42TR, SHUNT C 2 2TPER CL 2 2 2TPER CL 4 2 2TPER CL 4 2 2TPER TK 2 2TPER TK 2TP 2 2TPER TK 2TP 2 2TPER TK 2TP 3 2TPER SW 1 2	C 2TPER C 2TPER C 2TPER TR_SHUNT 2TF PER 42TR_SHI PER 6ZTR_SHI ER 2TPER ER 2TPER ER 2TPER ER 2TPER	Disconnected 0 With No Connections 3 Tracks 0 Signals 0 Switches 0 Diamonds Hide All	Show Crossovers Switchs with the same Office Request ✓ Show an X at disconnected points Hold down the left ☐ bution to hilight disconnected points Get All Interconnections Check for overlaps
				<	4	1	Show Extra
		e Under Test tes 4 Total Routes		nactive Routes [ And Back Moves]	- Show Conflicting Routes		Show Simple Routes
∢ m Ready	1 2 to 41-N 2.2 to 61-R 3.4 to 21-N 4.6 to 21-R					-	

Connected:

STRATHCON	A [C:\VSLS_PROJECTS\STRATHCC	ONA\SIM\STRATHCO	NA.D2K ] CSX	( Code 1 & 6 - Se	aboard, Abs, High, Colorlight				x
	ns Tag Names & Setup Interlo	cking All Help							
Save	Toolbar Grid On / Off On / Off	All On / Off	★ Tag Search	Power On/Off & Normalize	Loaded Communication Programs Setup	Change Of State History	Open Location MDB	Close Drawing Only	
$\checkmark$	26442B_WIU STRA	THCONA AII	Programs						
	2		21		••-				* III
•						•			Ľ
Drawing Option					6	8			

Viewing Routes – Select from list of routes found:

STRATHCONA - Router Get Routes Display Drawing Monochrome Disconnected-Element InterConnection Details 2ZTR\_SHUNT CC 2TPER 0 With No Hide CL Heads & Hide Track 1 4ZTR\_SHUNT CC 2TPER 1 6ZTR\_SHUNT CC 2TPER Save Routes to Data Base Insulated Joints Names Connections 2 2TPER CL 2 2ZTR\_SHUNT 2TF 2 2TPER CL 4 2TPER 4ZTR\_SHU 2 2TPER CL 6 2TPER 6ZTR\_SHU Screen Dump Routes Show Equivalent Track Length Open Location MDB Re Draw Switches & Signals 3 Tracks 2 2TPER TK 2TPER 2TPER 2 2TPER TK 2TPER 2TPER 22TPER TK 2TPER 2TPER 22TPER TK 2TPER 2TPER 32TPER SW1 2TPER 2TPER 2 0 Signals Click on a switch name below to toggle the switch between Locked and Un Locked. Switches in the route are show in dark red. Red = Locked, Grey = Un Locked 0 Switches 0 Diamonds Hide All III Show Conflicting Routes Route Under Test 0 Inactive Routes П (Over And Back Moves) 4 Active Routes 4 Total Routes 2.2 to 61-R 3. 4 to 2 1-N STRATHCONA [C:\VSLS\_PROJECTS\STRATHCONA\SIM\STRATHCONA.D2K] CSX Code 1 & 6 - Seaboard,Abs,High,Colorlight 4.6 to 21-R Drawing Options Tag Names & Setup Interlocking All Help Oper Locati MDB Power On/Off & Normalize Change Of State History Toolbar Grid ★ <sup>Tag</sup> Search Loaded Communication Setup All Router 🚽 <u>S</u>ave On / Off On / Off On / Off Programs 26442B\_WIU STRATHCONA All Programs Ł

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:

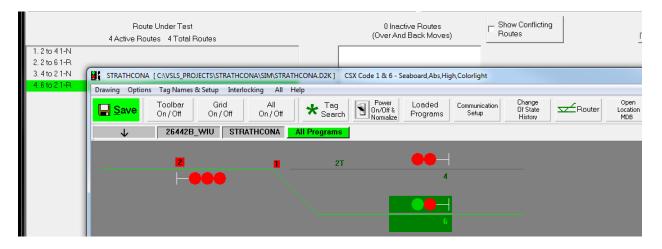


Route 3:

# Vital-Sim Quick Start Guide

1. 2 to 41-N 2. 2 to 61-R	Route Under Test     0 Inactive Routes (Over And Back Moves)     Show Conflicting Routes
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
	Save     Toolbar On / Off     Grid On / Off     All On / Off     ★ Tag On / Off     Power Search     Loaded Programs     Communication Programs     Change Of State History     Change Of State History       ↓     26442B_WIU     STRATHCONA     All Programs     M Programs     Communication Programs     Communication Setup     Change Of State History     Communication History     Communication MDB
	6

#### Route 4:



### **Aspects and Downgrades**

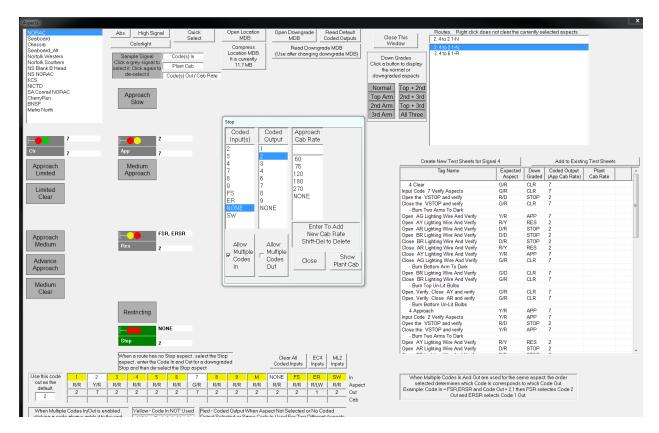
For Vital-Sim customers that have purchased the Lamp Out List Accessory Program option, several screens are provided to define signal aspects and associated downgrades for each route in an interlocking.

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:

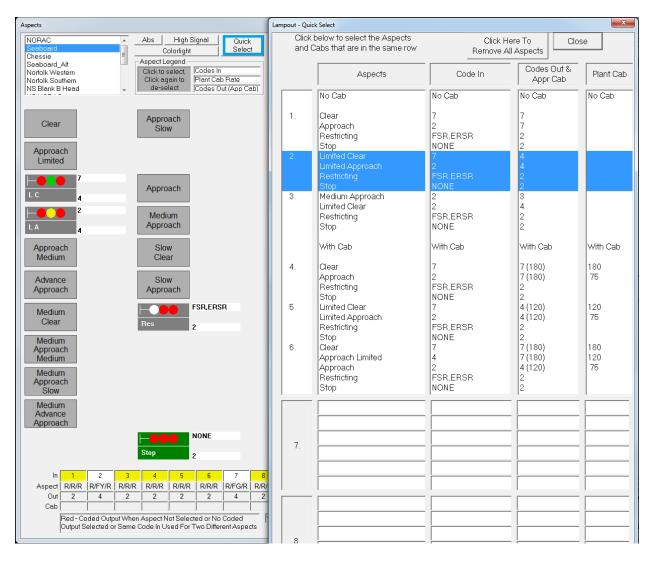
Color Light		1 A A A	MCCORE II				
Signal Name 2	Office Request	Local Panel Request	Show Track Name	Show Track	OK	CANCEL	Metro-North
Track Display 2TPER	C2GS Cancel	LP2GS Cancel	Allow Multiple Bulbs Per Head	Running Time 2TE	Display Aspects		Show Insulated Joints
Track Control 2TPR	CSTOP	LIDETOD	Offset A Bulb	Clear Block	Show 'Other' Tags	Overrun 2TE	East or South
Route		RGP 2RGPR	LSR/ASF	21 SB	This Signal Uses		When this signal is an Exit And the leaving track is occupied, the entrance
Show Bulbs Not Letters		, ☐ Invert Lamp Outs	GZF		Approach Locking	When this signal is an Entrance And is occupied, requesting the signal must clear to S&P	must clear to
Solid Bulb Tag Names						These Routes Use Timed Single Track Restore	Opposing Routes must clear to Restricting or S&P, for Opposing
A 2AGE 2AYE 2AYE 2ARE Text	D	G					Routes only.

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:



Over ester Marry Tarest Character (e.g. Circ			A states Erviction	- Ta at Charata	
Create New Test Sheets for Sig	nal 4		Add to Existin	ng Test Sheets	
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		
		0700	•		

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

(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.)

ERRORS	Create New Test Sheets for Signal 2	Add to Existing Test Sheets				
Click a line below.	Tag Name		pected spect	Down Graded	Coded Output (App Cab Rate)	
	2 Clear	G/R	/R	CLR	7	
Error details	Input Code 7 Verify Aspects	G/R	/R	CLR	7	
are shown	Open the VSTOP and verify	R/D	/D	STOP	2	
on the right in	Close the VSTOP and verify	G/R	/R	CLR	7	
blue	- Burn Three Arms To Dark					
Line 8	Open AG Lighting Wire And Verify	Y/R	/R	APP	7	
Line 12	Open AY Lighting Wire And Verify	R/R	/Y	RES	2	
Line 40	Open AR Lighting Wire And Verify	D/R	/LW	RES	?????	
Line 44	Open BR Lighting Wire And Verify	D/D	/R	STOP	2	
Line 70	Open CR Lighting Wire And Verify	D/D	/D	STOP	2	
Line 74	Close CR Lighting Wire And Verify	D/D/R		STOP	2	
Line 77	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		/R	CLR	7	
	- Burn Center Un-Lit Bulbs					

# For some conditions, errors are detected and highlighted:

Example Generated Lampout Testsheet:

TRAINSPORTATION	Test Starte Tested By				t Comple				
		PRE-TEST SIGNAL	LAMP DO	OWNGR/	<u>ADE</u>				
		er signal aspects and the c owngrades before beginni		r each asp	ect	One	a spect pe	er form	
-		iter) and the DGPR (Green	-	are only fo	or signal i	mechar	nisms		
Signal	2	-	<u>Clear</u>		2				
1. 2 to 4 1-N		·		Down Graded Aspect	2ZTR_S HUNT	Plant Cab Rate	RGPR H/L		
Verify: Home	and Appro	ach Signal Aspects	Aspect		Code			HGPR	DGPR
	2	Clear	G/R/R	CLR	7		L		
Input Coo	ile 7	Verify Aspects	G/R/R	CLR	7		L		
Open th	ne VSTOP	and verify	R/D/D	STOP	2		Н		
Close th	ne VSTOP	and verify	G/R/R	CLR	7		L		
	- Burn	Three Arms To Dark							
Ope	en AG	Lighting Wire And Verify	Y/R/R	APP	7		L		
Opt	en AY	Lighting Wire And Verify	R/R/LW	RES	2		L		
Opt	en AR	Lighting Wire And Verify	D/R/LW	RES	2		L		
Opt	en BR	Lighting Wire And Verify	D/D/LW	RES	2		L		
Opt	en CLW	Lighting Wire And Verify	D/D/R	STOP	2		Н		
Opt	en CR	Lighting Wire And Verify	D/D/D	STOP	2		Н		
Clos	se CR	Lighting Wire And Verify	D/D/R	STOP	2		H		
Clos	se CLW	Lighting Wire And Verify	D/D/LW	RES	2		L		
Clos	se BR	Lighting Wire And Verify	D/R/LW	RES	2		L		
Clos	se AR	Lighting Wire And Verify	R/R/LW	RES	2		L		
Clos	se AY	Lighting Wire And Verify	Y/R/R	APP	7		L		
Clos	se AG	Lighting Wire And Verify	G/R/R	CLR	7		L		
	- Burn	Middle Arm To Dark							
Opt	en BR	Lighting Wire And Verify	G/D/R	CLR	7		L		
Clos	se BR	Lighting Wire And Verify	G/R/R	CLR	7		L		
	- Burn	Bottom Arm To Dark							
Opt	en CR	Lighting Wire And Verify	G/R/D	CLR	7		L		
Clos	se CR	Lighting Wire And Verify	G/R/R	CLR	7		L		
		Bottom 2 Arms							
Ор	en BR	Lighting Wire And Verify	G/D/R	CLR	7		L		
Ор		Lighting Wire And Verify	G/D/D	CLR	7		L		
Clos		Lighting Wire and Verify	G/D/R	CLR	7		L		
Clos		Lighting Wire and Verify	G/R/R	CLR	7		L		
		Top Un-Lit Bulbs							
Open, Verify, Clo		and verify	G/R/R	CLR	7		L		
Open, Verify, Clo		and verify	G/R/R	CLR	7		L		
	- Burn	Center Un-Lit Bulbs							
Open, Verify, Clo	se BY	and verify	G/R/R	CLR	7		L		

### **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)

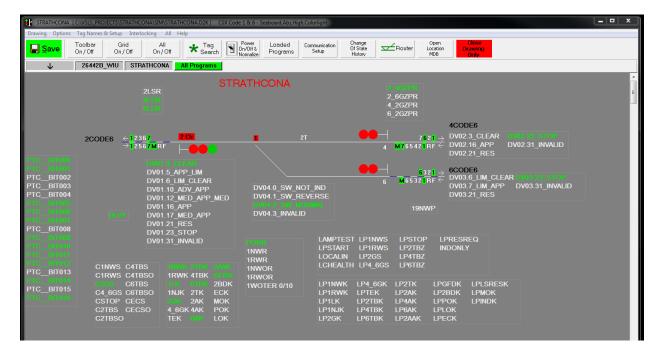
(".wiuapp" generated by Ansaldo/Microlok PTC tools)

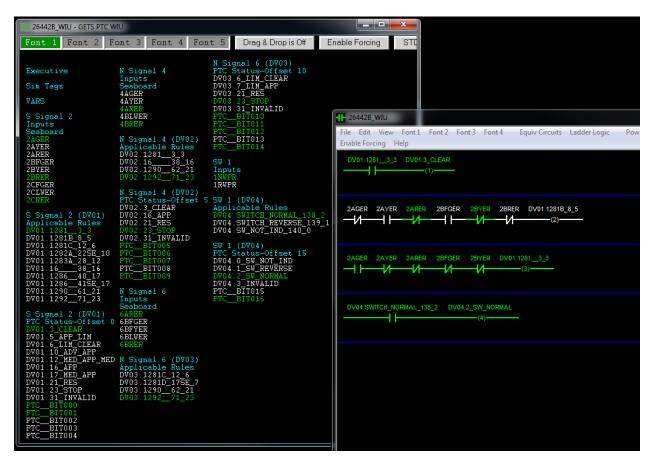
A taglist window is generated for each PTC application in the project folder:

26442B_WIU - GETS PTC W	VIU				×
Font 1 Font 2 F	ont 3 Font 4	Font 5	Drag & Drop is Off	Enable Forcing	STE
Executive Sim Tags VARS Signal 2 Inputs Seaboard 2AGER 2AYER 2ARER 2BFGER 2BFGER 2BFGER 2CFGER 2CFGER 2CFGER 2CTWER 2CRER Signal 2 (DV01) Applicable Rules DV01 1281 3.3 DV01 1281 3.3 DV01 1281 9.3 DV01 1282 4.225E 10 DV01 1282 4.225E 10 DV01 1282 4.225E 10 DV01 1286 4.0 DV01 1292 7.2 Signal 2 (DV01) PTC Status-Offset 0 DV01 6. IM CLEAR DV01 6. IM CLEAR DV01 10 ADV APP DV01 10 ADV APP DV01 12 MED APP MED DV01 12 RES DV01 23 STOP DV01 23 STOP DV01 21 RES DV01 23 STOP DV01 21 RES DV01 23 STOP DV01 21 RES DV01 21 RES	6BFYER 6BLWER 6BRER	N Si: PTC 3 DV03 DV03 DV03 DV03 PTC 2 PTC	gnal 6 (DV03) Status-Offset 10 .6_LIM_CLEAR .7_IIM_APP .21_RES .23_STOP .31_INVALID _BIT010 BIT010 BIT011 _BIT013 _BIT014 ts R R	-2	

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

 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.