CANect_® Composer User's Manual

Revision: B01

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1 References

This manual is current to version 1.2.7. Screenshots in this User Manual show the software running in the Windows 10: 64 bit system.

1.1 Downloader User Guide and Installer

Use this information to log in to the HED server and download the CANect® Composer installer and updated user guide. See <u>Section 5</u> for instructions.

Location:	ftp.hedonline.com
username:	CANect
password:	FirstTools

Folder: Downloader

2 Supported Operating Systems, OS

CANect® Composer can be run in each of the operating systems listed below.

2.1 Windows OS

- Windows 7
- Windows 8
- Windows 10

2.2 Linux OS

- Ubuntu
- Debian

3 Web Browser Support

- Internet Explorer
- Microsoft Edge
- Google Chrome
- Firefox
 - \circ Not tested

Note: Some browser-based actions are dependent upon how the browser is configured. Note: It is recommended to change the selected web browser to ask where to save/download files.

Example: web browse settings->advance->Downloads

Ask where to save each file before downloading



4 Overview

4.1 CANect® Overview

CANect® is a telematics system that lets the user manage and send asset data and view it in an aggregated fleet format. The system consists of an onboard module, software, and cloud storage. From the module, the user can send data via device-to-device or cloud-to-device. Device software is updated using Over-the-Air Programming.

The CANect® software has several parts: Composer, View, Reflector, and Portal. This manual covers <u>Composer</u>.

Users use CANect Composer to configure what data to read, how to read it, and what to do with it after it is read (log data, transmit to View, transmit to Portal). The data can be inputs to the CANect module, inputs internal to the CANect module (ex: accelerometer), and \or messages available on the CAN bus.

CANect[®] View is a local website for viewing the information gathered by the CANect module. The module links to View after it has created a database with Composer.

CANect® Reflector is a cellular or WIFI connection to the cloud to a module. The software is so named because it reflects the local website out to the cloud. It allows you to remotely log in to the CANect View website.

CANect® Portal is the cloud component of the system.

CANect® Composer Overview

CANect® Composer lets the user customize their module and onboard display, as well as the data collection and transmission processes. The Composer software creates a database that will be programmed into the CANect® module.

HED®'s Orchestra® suite also has Composer software. Both the CANect® and Orchestra® Composer software share the same name, but they have different functions.



5 CANect[®] Composer Installation

CANect® Composer is web page that runs on a PC through a local host, as shown in Figure 15.

5.1 Getting CANect® Composer

Users get CANect[®] Composer by logging in to the HED FTP server and downloading a folder containing the files necessary to run Composer. The folder contains the Composer .zip file, and users can then <u>extract files</u> for <u>their operating system</u>.

5.1.1 Login to HED FTP Server

FTP located at:					
Location:	ftp.hedonline.com				
username:	CANect				
password:	FirstTools				
•	Log On As				
	Either the server does not allow anonymous logins or the e-mail address was not accepted.				
	FTP server: ftp.hedonline.com				
	User name: CANect ~				
	Password:				
	After you log on, you can add this server to your Favorites and return to it easily.				
	FTP does not encrypt or encode passwords or data before sending them to the server. To protect the security of your passwords and data, use WebDAV instead.				
	Log on anonymously				
	Log On Cancel				

Figure 1: HED FTP Log In Screen

5.1.1.1 To Log In to FTP in Windows

- 1. Open Windows Explorer.
- 2. Enter <u>ftp.hedonline.com</u> into the menu bar, as shown in <u>Figure 2</u>.

File Home Share	View				^ ?
Pin to Quick Copy Paste	Cut Copy path Paste shortcut	ve Copy to to t	New item *	Properties	Select all Select none
Clipboard		Organize	New	Open	Select
← → ▼ ↑ ♥ → The Internet → ftp.hedonline.com ✓ × Search ftp.hedonline.com					
Desktop			Enter the Location Name here		
骗 OS (C:)	~				

Figure 2: Enter Server Location Into Explorer Menu Bar

- 3. A server log in screen opens, as shown in Figure 3.
- 4. In the User Name field, enter the name CANECT.



5. In the Password field, enter the password FirstTools, as shown in Figure 3.

Log On	As		Х	
?	Either the server does not allow anonymous logins or the e-mail address was not accepted.			
	FTP server:	tp.hedonline.com		
	User name:	CANect ~		
Password:				
	After you log on	, you can add this server to your P. orites and return to it easily.		
A	FTP does not en server. To prot	crypt or encode passwords or data te Enter the password passwords a password be password here here	I.	
	Log on <u>a</u> nony	mously Save password		
			_	

Figure 3: HED Server Password

- 6. Click the **Log On** button.
- 7. An Explorer window opens.
- 8. Click the relevant operating system folder.
- 9. In Windows Explorer, right click on the OS zip file that was downloaded.
- 10. Extract files.

5.1.1.2 To Log In to FTP in Linux-Debian

- 1. Open a web browser.
- 2. Enter <u>ftp.hedonline.com</u> into the URL bar.
- 3. A server log in screen opens, as shown in <u>Figure 4.</u>

2	Authentication Required	+ □ X
and the second s	Enter username and password for ftp://ftp.hedo	online.com
User Nan	ne:	
Passwo	rd:	

Figure 4: Linux Server Log In Screen

- 4. In the User Name field, enter the name CANECT.
- 5. In the Password field, enter the password FirstTools, as shown in Figure 5.

•	Authentication Required	T L 🔨
and the second	Enter username and password for ftp://t	tp.hedonline.com
User Name:	CANect	assword here
Password:	••••••••	
	Canc	el 🦪 OK



- 6. Click the **OK** button.
- 7. An index of CANect® Composer Installation files opens, as shown in Figure 6.



//ftp. hedonline.com /CANect Composer Installation/		
Index of ftp://ftp.hedonline.com/CANect Co	mposer Installatio	n/
Name	Size	Last Modified
CANect Composer User Manual - Rev A05.pdf	3442 KB	04/12/2017 04:00:00 PM
ebian.8-x64.tar.bz2	55159 KB	04/12/2017 04:00:00 PM
osx.10.11-x64.tar.bz2	54390 KB	04/12/2017 04:00:00 PM
ubuntu.16.04-x64.tar.bz2	55078 KB	04/12/2017 04:00:00 PM
	65610 KB	04/12/2017 04:00:00 PM
win10-x64.2ip		
win10-x64.zip	66974 KB	04/12/2017 04:00:00 PM

Figure 6: Linux Composer Installation Files List

- 8. Click the version of Linux you are using.
- 9. Enter the User Name and Password, if needed.
- 10. A dialog box appears, prompting the user to save or open the file. Accept the default software to open the file, or choose a different application. See Figure 7.

📽 Opening debian.8-x64.tar.bz2 🛧		×			
You have chosen to open:					
debian.8-x64.tar.bz2 which is a: Bzip archive (53.9 MB) from: ftp://ftp.hedonline.com					
What should Iceweasel do with this file?					
● <u>Open with</u> Squeeze (default) ▼					
Save File					
Do this <u>a</u> utomatically for files like this from now on.					
🔇 Cancel 🧠 🖓 Ok	(
Elenar 7. Limm On an Elles Diales De					

Figure 7: Lixux-Open Files Dialog Box

11. Click **OK**.

12. The download list opens, as shown in Figure 8.

8	Downloads	+ _ □ X
☐ debian.8-x64.ta 53.9 MB — hedonli	ar-1.bz2 ine.com	12:18 PM
ebian.8-x64.ta 53.9 MB — hedonli	ar.bz2 ine.com	11:07 AM
🏷 <u>C</u> lear List	Search	ā,
Figure 8: L	inux—Download List	

0

- 13. From the download list, double click the file to open it.
- 14. Extract the files, as shown in Figure 9.
- 15. Untar the tar files.
- 16. Debian 8 users need to run the following command in a command terminal before starting CANect® Composer:

sudo apt-get install libunwind8-dev

0	Squ	Jeeze	- debian.8-x64.tar-1.bz2	Ŷ	- 🗆 X
<u>F</u> ile	Action View	<u>H</u> elp			
	📪 <u>A</u> dd				
	<u>Extract</u>		P		
Nam	👮 <u>D</u> elete				•
📄 d	🔁 <u>R</u> efresh	F5			
Done					

Figure 9: Linux—Extract Files



5.1.2 Select Proper Operating System in Windows

Select your operating system from the folder: CANect® Composer Installation Options:

- win7-x64.zip
- win10-x64.zip
- ubuntu.16.04-x64.tar



Figure 10: CANect® Composer Installation Folder

5.2 Launching CANect® Composer

Launching CANect® Composer can be done manually or automatically.

5.2.1 Launch the Local Web Server Manually in Windows

Start up the local web server by running CANectComposer.exe.

- 1. Find the CANect Composer.exe file in the computer's program list.
- 2. Double click the .exe file to run it, as shown in Figure 13.



Figure 11: Composer.exe File in Program List

3. Launch the web page by typing <u>http://localhost:5000</u> into a web browser.







5.2.2 Launch the Local Web Server Automatically

1) Start up both the local web server and the web page by clicking the StartCANectComposer.bat file.



Figure 13 CANectComposer.bat File

5.2.3 Launch the Local Web Server Manually in Linux

1) Start up the local web server by running ./CANectComposer.

		Termi	nal -	hed@debian: ~		۰.	. 🗆	×		
<u>F</u> ile	<u>E</u> dit <u>V</u> iew	<u>T</u> erminal	<u>G</u> o	<u>H</u> elp						
hed@debian:~\$./CANectComposer										
								∇		
		Fi	gure	e 14: Linux Terminal						

2) Launch the web page by running typing http://localhost:5000 into a web browser.

New Tab	×							
$ \leftarrow \rightarrow \mathbf{G}$	http://localhost:5000							
🚺 Apps 🗋	🛛 Orcehstra TFS 🛛 Agile Portfolio Manag							

Figure 15: Enter the Server Name into a Web Browser



6 Software Layout

CANect® Composer opens as a web page, and is laid out in two parts. The first part is the <u>Top Menu Bar</u>, and the second part is the <u>Display Pane</u>.

CANect Composer	× +	_	- 0	×
\leftarrow \rightarrow \circlearrowright localhost:5000	Top Menu Ba	ar) □ ☆ =		
File • View • Configuration Steps >>	Module >> Application >> Parameter >> Compile			
Display Pane	ANect	R		

Figure 16: Composer Page Layout

6.1 Top Menu Bar

The top menu bar allows the user to customize CANect Composer, aids in the configuration process, and handles project storage. It is shown in Figure 17.

File *	View *	Configuration Steps >> ① Module	>>	① Application	>>	① Parameter	>>	Compile	

Figure 17: Top Menu Bar

6.1.1 Menu Bar Items

6.1.1.1 File

Selecting File accesses a drop down menu of file operations. These operations are New Project, Open Project, Save Project, Export to Excel, and Import to Excel.



Figure 18: File Menu

6.1.1.1.1 New Project

Closes an existing project and <u>starts a new one</u>. A new project begins with selecting a module and then prompts the user to configure it.



6.1.1.1.2 Open project

Clicking this opens an existing project with file extension ".ccm". An open dialog box will appear for the user to select a file. Click the **Browse** button to navigate to a saved project.

Select Project	×
Select file:	
	Browse

Figure 19: Browse for Project File to Open

To Open a Project

- 1. Click File→Open Project.
- 2. A Select Project window opens.
- 3. Click Browse.
- 4. Double click the file to open.

Opening a project also closes any projects that were previously opened.

6.1.1.1.3 Save Project

Saves the current project. Saved projects are stored with the ".ccm" file extension. Files are saved to the default download path of the computer or the selected path.

Note: HED recommends that users do all their work from a local drive as losing network connection can cause corruption. If the project needs to be saved on a network or into version control, we suggest first saving it locally and then copying it where ever it needs to go. For some of the display files, version control will convert them from Linux format to Windows format and then the CANect module doesn't work properly.

To Save a Project

- 1. Click **File→Save Project**.
- 2. A dialog box opens on the bottom of the webpage.



6.1.1.1.4 Click Save Export to Excel

Users can import and export Excel projects. This enables users to work in Excel if they choose, and it supports localization.

Exports an entire project to an Excel file. The exported file can be edited and imported back into the project. This is an advanced operation designed to speed up data entry. If a user makes changes to the project in Excel, it needs to be re-imported into CANect Composer to save the changes. Use the <u>Import from Excel</u> function to import edited spreadsheets.

Sav	ve To Excel									×
•										
X										
< .	- C. Number Form	at.								>
AI	A A	B	с	D	E	F	G	н	1	^
1	Number Format	DEC								1
2	Application Version	1.1.9								
3										
4										
5										
6										
7										
8										
9										
10										_
	Configuration	odules App	lications	Langu	ages	Strings	Groups	Units		

Figure 20: Export to Excel

To Export to Excel

- 1. Click **File→Export to Excel**.
- 2. The Save to Excel screen opens.
- 3. The fields are populated with data, as shown in Figure 19.
- 4. Click the Excel icon in the top left corner above the spreadsheet.
- 5. An Export screen opens.

Export			×
File name:	Workbook		
Save as type:	Excel Workbook (.xlsx)		•
		Save	ancel

Figure 21: Export Screen

- 6. In the File Name field, enter a name for the exported workbook.
- 7. In the Save as Type dropdown field, select a file type to save the exported workbook.
- 8. Click Save.
- 9. A dialog box opens in the webpage.
- 10. Select **Save** or **Save** As.
- 11. A File Explorer window opens.
- 12. Select a place to save the exported workbook.



- 13. Click Save.
- 14. A dialog box opens at the bottom of the webpage.
- 15. Select **Open**.
- 16. The workbook opens.

6.1.1.1.5 Import from Excel

Imports the exported Excel changes back into CANect® Composer. When an exported project is imported, <u>validation checks occur</u> to ensure data is validated before the import takes place. These validation checks are shown in Figure 23.

Impo	ort Fron	n Exce	l								□ ×
											Í
	→ H	ome									
Þ											
< C6		• f_X									>
	Α	В	С	D	E	F	G	н	I.	J	M ^
1	1	A	Red								
2	2	В	Orange								
3	3	С	Yellow								
4	4	D	Green								
5	5	E	Blue								
6											
7				•							
θ											\sim
<											>
S	heet1										

Figure 22: Import from Excel

To Import from Excel

- 1. Click **File→Import from Excel**.
- 2. The Import from Excel screen opens, as shown in Figure 21.
- 3. Click the file folder icon in the top left corner above the spreadsheet.
- 4. A File Explorer window opens.
- 5. Select the Excel file to import.
- 6. Composer performs validation checks.

Impo	rt From	Excel															×
									Γ	Valida	ating Schem	a for S	Sheet3		100	%	
•	→ Ho	me															
b	Validation check																
A1	v fx																
1	A	В	С	D	E	F	G	н	1	J	к	L	. M	N	0	P	
2																	
3																	
4																	
5																	
Ŭ																	
<	Sheet1	She	eet2	Sheet3			ſ	Valio	dation	erro	<u> </u>					>	
🕅 E	xport to I	Excel							criptic	11 1131							
Erro	r Descrip	otion			-					:	Severity	:	Action T	:	Phase		
She	Sheet Sheet1 does not belongs to the Excel Database Schema Warning Ignored Schema Validating																
She	Sheet Sheet2 does not belongs to the Excel Database Schema Warning Warning Ignored Schema Validating Validating																

Figure 23: Import Validation Checks



If the spreadsheet data passes the validation checks, it will be imported into Composer.

If the data does not pass the validation checks, it will not be imported, as shown in Figure 23. Composer displays a description of errors, with fields for severity, action taken, and phase.

- 7. Click the "Import" button
- 8. A notification saying that the database has been imported displays in the bottom right corner of the Composer screen.

File 🔻		View •	Configuration Steps >>	 Module 	>>		>>	>>	Numeric Format: • HEX	DEC	•
Select M	odı	ule									
CL-T05-1	07-	10 CL-T0	15-108-10 CL-T06-108-10	CL-T07-10	08-10	D					
(M) (4)	0		4							No items to displa	iy
Apply											
									④13:0	6:12.376: Database Impor	rted

Figure 24: Successful Database Import Notification

6.1.1.2 View

Selecting View accesses the Font Size and Theme settings.



Figure 25: View Menu

6.1.1.2.1 Font Size

The Font Size property allows the user to change the font size of all text in the application. Font sizes are changed upon selection.

6.1.1.2.2 Theme

Themes allow the user to change backgrounds and colors of the web pages. Themes are changed upon selection.



Figure 26: Theme Menu



6.1.1.3 Configuration steps

The <u>Configuration Steps</u> header walks the user through the minimum settings needed to move to the next step. They are shown in <u>Figure 25</u>.

 File *
 View *
 Configuration Steps >> ① Module
 >> ① Application
 >> ② Parameter
 >> Compile

Figure 27: Configuration Steps Header

The steps are:

- 1. Selecting a <u>module</u>.
- 2. Selecting the <u>applications to run.</u>
- 3. Setting up parameters.
- 4. <u>Compiling</u> the project.

The Configuration steps are explained in detail in Section 7.

An orange highlighted box indicates the step selected, as shown in <u>Figure 26</u>. The main window will load with the current step's properties.



Figure 28: Highlighted Configuration Step

Note: A grayed out step means that the previous step needs to be completed first. When the step has met the minimum requirements, the ⁽¹⁾ will change to ⁽¹⁾ and the next step will become selectable.

6.2 Display Pane

The Configuration Steps open in the Display Pane. When CANect® Composer first opens, the CANect® logo is shown in the Display Pane.

6.3 Column Settings

To change the column settings, right click on the three dots at the right of the column. There are four settings: Sort Ascending, Sort Descending, Columns, and Filter.

File •	V	ew 🔻 🛛 C	onfi	iguration Steps >:	>	Module >> 🗸 Application	n	>> 🗸 Parameter	>>				•
Select Mod	ule												
CL-T05-107-	10	CL-T05-10	08-	10 CL-T06-108-	10	CL-T07-108-10							
		N											No items to display
Apply													
Configure L	.00	6											
Size: 15000				\$									
Configure C	A	1											
CAN 1 Bus S	pee	d: 250K		•	CA	AN 2 Bus Speed: 250K		•				Click to the c	ochange column tings
Configure I	/0												
Conne	:	Pin †	:	Туре	:	Function	:	Param Name	Мо	ode	:		
A		11		Input		Switched Battery		Input0	ST	В	1	Sort Ascending	<u>^</u>
А		12		Input		Input		Input1	VT	D	÷	Sort Descending	
А		18		Output		Output		Output0	Dig	gital	I	Columns •	
											٦	Filter •	

Figure 29: Column Settings



Settings:

Sort Ascending

Click Sort Ascending to organize the labels in the column in alphabetical order.

Function T	1
Input	Sort Ascending
Output	↓ Sort Descending
Switched Battery	Columns •
	▼Filter ►

Figure 30: Sort Ascending Column Setting

Sort Descending

Click Sort Descending to organize the labels in reverse alphabetical order.

Function ↓	:
Switched Battery	↑ Sort Ascending
Output	↓ Sort Descending
Input	Columns >
	▼Filter ►

Figure 31: Sort Descending Column Setting

Columns

Click Columns to select which columns to display in the Configure I/O Pane.

Column Options

- Connector
- Pin
- Type
- Function
- Param Name
- Mode

Function	:	Function	:	
Switched Battery	+ Sort Ascending	Switched Battery	+ Sort Ascending	
Input	↓ Sort Descending	Input	↓ Sort Descending	
Output	Columns	Output	Columns	⊡ Connector
	▼Filter		▼Filter	⊡ Pin
				🗹 Туре
				✓ Function
				⊠ Param Name
				Mode

Figure 32: Columns Selection

Column Setting



Filter

Click Filter to specify which items to display Filter Options

- Is equal to
- Is not equal to
- Starts with
- Contains
- Does not contain
- Ends with
- Is null
- Is not null
- Is empty
- Is not empty

Function	Param Name	
Switched Battery	+ Sort Ascending	
Input	↓ Sort Descending	
Output	Columns •	
	▼ Filter ►	Show items with value that: Is equal to • And • Is equal to •
		Filter Clear

Figure 33: Filter Column Settings

6.4 Display Format

Select Decimal or Hexadecimal format for data being presented in CANect® Composer. Some data will always be displayed in a particular format. The Display Format is displayed when the main screen contains data that requires switching between HEX and Decimal format.

File • View • Configuration Steps >> Module >> Application >> Parameter >>	Numeric Format: HEX DEC
Select Module	
CL-T05-107-10 CL-T05-108-10 CL-T06-108-10 CL-T07-108-10	Choose HEX or DEC
	No items to display
Apply	

Figure 34: Numeric Format



Formats:

- HEX = Hexadecimal, where 0x is placed in front if number.
 - Base-16 system
 - 1-9 represented by Arabic numerals, 10-16 represented by the letters A,B,C,D,E,F
 - **Example:** Set 3 bits in a byte, using bit 1, 4, and 8. Data is displayed as 0x85, rather than 133 decimal
- DEC = Decimal
 - o Base-10 system

6.5 Page Navigation

Page navigation is located in the bottom left corner of the display pane. Use the navigation to move forward and backward by one page, or to move to the first and last page of the list.



Figure 35: Page Navigation

Additional navigation options are available at each configuration step.



Figure 36: Additional Navigation Options



7 Configuration Steps

To configure the module to read, log, or send data to CANect® Portal, several steps need to be completed. The steps are:

- 1. <u>Selecting and Configuring the Module</u>
- 2. Select and <u>Configure the Applications</u>
- 3. <u>Configure the Parameters</u>

7.1 Selecting and Configuring the Module

7.1.1 Select Module Pane

When Configuration Step: Module is selected, all available modules are loaded. Available modules are shown by a picture with text to describe the part number.

File *	View *	Configuration Steps >>	D Module	>> ① Application	>> (1) Paramet	ter >> Compile
Select Mo	dule	774-				
HED						
4						
100	-		77 CD	4		
CL-T05-10	7-10 CL-TO	5-108-10 CL-T06-108-10	CL-T07-10	8-10		
		H				
Apply						

Figure 37: Select Module Pane

1. Select a module to view the <u>CAN</u> and <u>I/O</u> configurations panes, as well as the datalogger file size.

File • View • Configuration Steps >> ① Module >> ① Application >> ① Parameter >> Compile							
ect Module							
HED CL-T05-108-10 CL-T06-108-10 CL-T07-108-10							
No items to display							
Apply							
Configure LOG Data Logger File Size Configuration							
Pane CAN Size: 15000							
Configure CAN Pane							
CAN 1 Bus Speed: 250K CAN 2 Bus Speed: 250K I/O							
nfigure I/O							
onnector t : Pin t : Type : Function : Param Name : Mode :							
11 Input Switched Battery Input0 STB							

Figure 38: Module CAN and I/O Configuration Panes



2. To set the selected module for use in the project, click the **Apply** button. Applying the module will set which properties of application are seen, as described in the <u>Selecting Application</u> section.

File • View • Configuration Steps >> ① Module >> ① Application >> ② Parameter >> Compile						
Select Module						
Image: CL-T05-107-10 Image: CL-T05-108-10 Image: CL-T05-108-10 Image: CL-T05-108-10						
No items to display Apply Configure LOG						
Size: 15000						
Configure CAN						
CAN 1 Bus Speed: 250K CAN 2 Bus Speed: 250K						
Configure I/O						
Connector † § Pin † Type § Function § Param Name § Mode						
A 11 Input Switched Battery Input0 STB						

Figure 39: Apply Button

The selected module will have a green check mark overlaid.





7.1.2 Configure Data Logger File Size

In the Configure LOG box, set the size of the data logged files. Users can enter the size directly into the field, or adjust the value using the arrow buttons to the right of the field. The minimum value for the size range is 5000, and the maximum value for the size range is 1000000.

Select Module					
CL-T05-107-10	CL-T05-108-10	CL-T06-108-10	CL-T07-108-10		
	N				No items to display
Apply					
Configure LOG Size: 15000	€ •		Click to adjust the size		
CAN 1 Bus Spee	d: 250K	▼ CA	N 2 Bus Speed:	250К 🔹	
Configure I/O					
Connec 1 :	Pin † 🚦	Туре :	Function :	Param Name	Mode :
А	11	Input	Switched Battery	Input0	STB

Figure 41 Configure Data Logger File Size

7.1.3 Configure CAN Pane

The Configure CAN pane allows the user to setup <u>CAN baud rates</u> on the module. Use the drop down boxes to select the desired CAN baud rate for each CAN bus. All applications enabled will use the CAN settings set here.

The Configure CAN fields are populated with the default settings for the selected module.

Select Module						
HED CL-T05-107-10 CL		6-108-10 CL-T07-108-10				
	M				No items	s to display
Apply						
Configure LOG						
Size: 15000	\$					
Configure CAN						
CAN 1 Bus Speed	250K	CAN 2 Bus Speed 2	50К 🔹			
Configure I/O						
Connector †	Pin †	Туре	Function	Param Name	Mode	:
A	11	Input	Switched Battery	Input0	STB	
		Eigung 42.	Configura CAN De	-		

Figure 42: Configure CAN Pane



7.1.4 Configure I/O Pane

If using the modules' $\underline{I/O}$ pins, the mode must be set for each. Under the Mode column, set each pin to the desired mode. See <u>Mode Options</u> for descriptions of the settings.

Configure I/O								
Connector †	:	Pin †	:	Туре	÷	Function :	Param Name	Mode
А				Input		Switched Battery	Input0	STB
А		12		Input		Input	Input1	VTD
А		18		Output		Output	Output0	Digital
Figure 43: I/O Mode Options								

7.1.4.1 Mode Options

Input Modes:

- STB = Switch to Battery
 - $\circ \quad 0 = OFF$
 - \circ 1 = ON
- VTD = Voltage to Digital
 - o 0 to 4095

Output Modes:

- Digital = Either ON or OFF
 - $\circ 0 = OFF$
 - \circ 1 = ON

7.2 Selecting Applications

Applications can be enabled through the CANect® Composer's Application Pane.



7.2.1 Enable Application Pane

Enabling an application lets users set its properties and presets. To enable applications, click on the check boxes in the Enable column. To disable an application, click the checkbox again to un-check it.

File • View • Configuration Steps >> • Module >> ① Parameter >> Compile							
Enable Application		Set Application Properties					
Name	Enable	:					
CAN Parameters		^					
Module Parameters							
Telematics (Not Available)							
Reflector (Paid Service)							
FTP config							
WIFI							
Ethernet							
-	Figu	re 45: Enable Column					



In order to select the Telematics application, enable either CAN Parameters, Module Parameters, or both. Doing so will change the (Not Available) text to (Paid Service) and enable the check box.

Name	:	Enable :
CAN Parameters		
Module Parameters		
Telematics (Paid Service)		
Reflector (Paid Service)		Select One
FTP config		Enable Telematics
WIFI		
Ethernet		

Figure 46: Select CAN or Module Parameters to Enable Telematics

7.2.1.1 Enabling an application populates several areas of CANect® Composer: 1 – The Application Properties pane is populated with the configuration of the currently selected application. Each application properties screen will contain the configuration data for the application.

File • View • Configuration Steps >> M	lodule 🛛 🖂 Applic	cation	>> ① Parameter >> Compile		
Enable Application		-	Set Application Properties		
Name ~	Enable ~		Select CAN Status Parameters		
CAN Parameters		*	Description ~	Param Name 🗸	Enable
Module Parameters			CAN Bus Error	CAN1_bus_err	
Telematics			CAN RX Error Frames Count	CAN1_RX_err_cnt	
			CAN TX Error Frames Count	CAN1_TX_err_cnt	
			CAN TX Count	CAN1_TX_cnt	
			CAN RX Count	CAN1_RX_cnt	
			CAN Baud rate	CAN1_baud	•
			CAN Dropped Packet Count	CAN1_dropped_frame	•
			CAN RX buffer size	CAN1_RX_buf	
			CAN Bus Error	CAN2_bus_err	

Figure 47: Populated Application Properties Pane

2 – Enabling the Telematics Application will enable the Telematics Preset tab in the parameter step.

rameter Localization Units	Enumeration	Groups	DM1\DM2 Faults	Logging Presets	Telematics Pres	isets		
elematics Presets	Telematic	s Preset I	Properties			Assigned Pa	rameters	
Add × Delete	Telematics Modes:	Outside	of Range	•		Param ID	Param Name	
Telematics Group	Send on Shutdown:	• Off	On					
Default	Rate Limit (ms);	5000	\$	Low Range:	0.00			
Telematics Preset 2	Hysteresis:	0.00	\$	High Range:	0.00			
	1					1		
							N	

Figure 48: Telematics Preset Tab



3 – Enabling the Telematics Application will also add a property to enable and disable the parameter reporting on telematics. Inside the <u>Parameter Configuration tab</u>, <u>Telematics is added</u>.

Parameter	Localization	Units	Enun	neration	Groups	DM1\DM2 Fault	s Logg	ing Presets	Telematics Presets	
				Configu	ration	Received Message	Units			
				Parar	neter					
				Type: Alias:	• S Engi	tandard O Sync O ne Temperature	Custom	API () J193	9 O VPCA Status O	CHAT
				Units	\ Enume	ration				
				ODi	sable 🖲 I	Jnits 🔿 Enumeratio	n			
me ~	Order ~	Alias		Requ	est Upda	ite				
for test	1	paramete	erta	• Di	sable 🔿 s	Standard 🔘 Custor	n API			
ameter for test		linked pa	ira	Set P	aramete	r				
	2	for test		• Di	sable 🔿 s	Standard O Custor	n API			
				Data	Logging					
				• Di	sable 🔿	Enable				
				Telen	natics					
				• Di	sable 🔾	Enable				

Figure 49: Disable or Enable Telematics Property

7.2.2 Application Types

7.2.2.1 CAN Parameters Application

In order to receive and transmit CAN data, the CAN Parameters application must be enabled. Enabling a CAN Status parameter will add it to the list of parameters found in the <u>parameter step</u>. Disabling a CAN Status parameter will remove it from the list of parameters configuration.

File View Configuration S	Steps >> 🗸 Module	>> < Application >> < Parameter >> Compile				
Enable Application	^	Set Application Properties				
Name	Enable :	Select CAN Status Parameters				٦
CAN Parameters		Enable All Disable All				
Module Parameters	ENABLED	Description :	Param Na	Enable :		
Telematics (Paid Service)		CAN Bus Error	CAN1_bus_err			
Reflector (Paid Service)		CAN RX Error Frames Count	CAN1_RX_err			
FTP config		CAN TX Error Frames Count	CAN1_TX_err			
WIFI		CAN TX Count	CAN1_TX_cnt			
Ethernet		CAN RX Count	CAN1_RX_cnt			
		CAN Baud rate	CAN1_baud			
		CAN Dropped Packet Count	CAN1_droppe			
All v items per page	Ċ	CAN RX buffer size	CAN1_RX_buf			
	1 - 7 of 7 items	All vitems	s per page		1 - 16 of 16 items	Q

Figure 50: CAN Parameters



<u>CAN Status Parameters</u>: *Note: Not all parameters are available on every module.* Users can enable or disable all of the CAN parameters.

Set Application Properties						
Select CAN Status Parameters	Click to Enable or Disable all CAN					
Enable All Disable All	Parameters					
Description	Param Na	E :				
CAN Bus Error	CAN1_bus_err		ĺ			
CAN RX Error Frames Count	CAN1_RX_err					
CAN TX Error Frames Count	CAN1_TX_err					
CAN TX Count	CAN1_TX_cnt					
CAN Dropped Packet Count	CAN1_droppe					
All vite	ms per page	1 - 16 of 16 items 💍				
Figure 51 Enable or Disable All CAN Status Parameters						

• CAN1 bus err

Communicates the bus status of CAN 1. Values:

- 0 = Active
- 1 = Warning Detected Errors warning state
- 2 = Passive Detected Errors passive state
- 3 = Bus Off Disabled due to bus-off
- 4 = Stopped Disabled
- 5 = Unknown Unknown Error

• CAN1_RX_err_cnt

Communicates the number of receive errors on CAN 1 since power on. Values: 0 to 4294967295

• CAN1_TX_err_cnt

Communicates the number of transmit errors on CAN 1 since power on. Values: 0 to 4294967295

• CAN1_TX_cnt

Communicates the number of message transmitted on CAN 1 since power on. Values: 0 to 4294967295

• CAN1_RX_cnt

Communicates the number of message received on CAN 1 since power on. Values: 0 to 4294967295



• CAN1_baud

Communicates what the baud rate is set to on CAN 1. Values:

- 20000 = 20K Baud
- 50000 = 50K Baud
- 100000 = 100K Baud
- 120000 = 120K Baud
- 250000 = 250K Baud
- 500000 = 500K Baud
- 1000000 = 1M Baud

• CAN1_dropped_frame

Communicates the number of dropped frames on CAN 1_since power on. Values: 0 to 4294967295

• CAN1_RX_buf

Communicates the size of the receive buffer of CAN 1. Values: 0 to 4294967295

• CAN2_bus_err

Communicates the bus status of CAN 2. Values:

0 = Active

- 1 = Warning Detected Errors warning state
- 2 = Passive Detected Errors passive state
- 3 = Bus Off Disabled due to bus-off
- 4 = Stopped Disabled
- 5 = Unknown Unknown Error

• CAN2_RX_err_cnt

Communicates the number of receive errors on CAN 2 since power on. Values: 0 to 4294967295

• CAN2_TX_err_cnt Communicates the number of transmit errors on CAN 2 since power on. Values: 0 to 4294967295

• CAN2_TX_cnt

Communicates the number of message transmitted on CAN 2 since power on. Values: 0 to 4294967295

• CAN2_RX_cnt

Communicates the number of message received on CAN 2 since power on. Values: 0 to 4294967295



• CAN2_baud

Communicates what the baud rate is set to on CAN 2. Values:

- 20000 = 20K Baud
- 50000 = 50K Baud
- 100000 = 100K Baud
- 120000 = 120K Baud
- 250000 = 250K Baud
- 500000 = 500K Baud
- 1000000 = 1M Baud

• CAN2_dropped_frame

Communicates the number of dropped frames on CAN 2_since power on. Values: 0 to 4294967295

• CAN2_RX_buf

Communicates the size of the receive buffer of CAN 2. Values: 0 to 4294967295

7.2.2.2 Module Parameters Application

In order to use the modules' I/O and internal functionality, specific parameters need to be enabled. Enabling a module application property will add it to the list of parameters found in the parameter step. Disabling a property will remove it from the parameters step.

Additional properties can be selected to get specific information about the modules' peripheral devices. Some examples are GPS, CELL and WIFI.

File View Configuration	Steps >> 🗸 Module	>> Application >>	bile	
Enable Application	^	Set Application Properties		
Name	Enable :	Select CL-T07-108-10 Parameters		
CAN Parameters		Enable All Disable All		
Module Parameters	ENABLED	Description	Param Name	Enable :
Telematics (Paid Service)		GPS heading	GPS_head	
Reflector (Paid Service)		GPS satellites	GPS_sat	
FTP config		GPS ground speed	GPS_gs	
WIFI		y-axis acceleration	Y_accel	
Ethernet		z-axis acceleration	Z_accel	
	- 1	x-axis acceleration	X_accel	
All • items per page	Ċ	x-axis tilt	X_tilt	
	1 - 7 of 7 items	All v items pe	rpage 1-3	20 of 20 items 💍 🖒





Hardware Properties: (*Not all properties are available on every module.*) Users can enable or disable all of the CAN parameters.

Set Application Properties

Select CL-T07-108-10 Parameters Enable All Disable All	Click to enable or disable all Module Properties		
Description :	Param Name	Enat	ole :
GPS heading	GPS_head		,
GPS satellites	GPS_sat		
GPS ground speed	GPS_gs		
y-axis acceleration	Y_accel		
z-axis acceleration	Z_accel		
All v items	s per page 1 -	20 of 20	items 💍

Figure 53 Enable or Disable All Hardware Properties

• Location

GPS Latitude, Longitude, Altitude, Time and Date Value: String of the Coordinates Units:

> Latitude in degrees Longitude in degrees Altitude in meters Time in UTC Date in Month/ Day/Year



• GPS_head GPS Heading Value: 0 – 360 degrees





- **GPS_sat** Number of satellites detected. Value: 0 to 4294967295
- **GPS_gs** Ground Speed. Value: 0 to 4294967295 meters per second

• WIFI_connect Reports if the WIFI is connected. Value:

- 0 = Disconnected
- 1 = Connected
- 2 = Error

• WIFI_scan

Reports the available WIFI networks. Value: List containing all the WIFI networks.

• Cell_connect

Reports the cell connection status. Value:

0 = Disconnected

- 1 = Connected
- 2 = Error

• Cell_str

Reports the cell signal strength Value: 0 - 100%



• SIM_id

The SIM card's 20 digit number; used for billing purposes and displays in CANect Portal

This parameter is only on modules with SIM IDs, the CL-T06-108-10 and the CL-T07-T08-10.

Auto enabled on CL-T06-108-10 and CL-T07-T08-10 modules, and cannot be disabled

Value: 20 digit number.

File • View • Configuration Steps >> Application >> Parameter >> Compile							
Enable Application	Â	Set Application Properties					
Name	Enable :	Select CL-T06-108-10 Parameters					
CAN Parameters		Enable All Disable All					
Module Parameters	ENABLED	Description	Param Name	Enable :			
Telematics (Paid Service)		z-axis acceleration	Z_accel				
Reflector (Paid Service)		x-axis acceleration	X_accel				
FTP config		x-axis tilt	X_tilt				
Ethernet		y-axis tilt SIM_ID parameter is automatiadly enabled	Y_tilt	0			
		z-axis tilt for this module and the CL-T07-T08-10.	Z_tilt				
		Cell connection status	Cell_connect				
		The sim card id number	Sim_Id	ENABLED			
		Location	Location	9			
		Total Force Magnitude	Acc_mag	•			
		Electronic Serial Number	ESN	ENABLED			
		Available MAC Addresses (example: Ethernet, WIFI Client, WIFI AP)	If_MAC_Addr enabled				
		Reflector URL	Reflector_url	DISABLED			
		Pin: A, Connector: 12, Description: VTD	Input1				
All • items per page	c	Pin: A, Connector: 18, Description:	Output0				
	1 - 6 of 6 items	H I H H All I items per page		1 - 21 of 21 items 🛛 🖒			

• Input0 and Input 1

Inputs will show up as InputX, where X = 0 - number of inputs. Values:

```
STB

0 = OFF

1 = ON

VTD

0 - 4095
```

• Output0

Outputs will show up as OutputX, where X = 0 through number of outputs. Values:

Digital 0 = OFF1 = ON

• ESN

Electronic serial number of the asset. This parameter is automatically selected.

• If_Mac_Addr

Available Mac Addresses

If_MAC_Address displays the Network Interfaces that contain a MAC () address currently available on the modules. The parameter will display the list of addresses with the name of the interface and the MAC address of the interface. Typically our modules will display 3 interfaces eth0(Ethernet), mlan0(wireless), and uap0(access point)



Example:

eth0 4A:F5:A5:B2:21:EE mlan0 00:06:C6:48:3F:99 uap0 00:06:C6:48:3F:99

File • View • Configuration Steps >> • Module >> • Parameter >> Compile							
Enable Application	^	Set Application Properties					
Name	Enable	Select CL-T07-108-10 Parameters					
CAN Parameters		Enable All Disable All					
Module Parameters		Description	Param Name	Enable :			
Telematics (Paid Service)		x-axis tilt	X_tilt		^		
Reflector (Paid Service)		y-axis tilt	Y_tilt				
FTP config		z-axis tilt	Z_tilt				
WIFI		WIFI connection	WIFI_connect				
Ethernet		WIFI scan results	WIFI_scan		ł		
		Available MAC Addresses (example: Ethernet, WIFI Client, WIFI AP)	lf_MAC_Addr				
	~	Pin: A, Connector: 11, Description: Keyswitch (Switched Battery)	Input0				
All v items per page	c	Pin: A, Connector: 12, Description: VTD	Input1		~		
	1 - 7 of 7 items	All V items per page		1 - 23 of 23 items			

Figure 55: Available MAC Addresses

• Reflector url

Reflector URL. This parameter is automatically selected based on selection of Reflector application. This property is hidden from CANect Portal users. Displays the text parameter with the URL used for Reflector

Reflector_status

Reflector Status This parameter is automatically selected based on selection of Reflector application. This property is hidden from CANect Portal users. Integer bit mapped selection of what is selected for Reflector

Allow HTTPS Access = 1 Allow SSH Access = 2Allow WEBSocket Access = 4Allow Communication Through WIFI = 8Allow Communication through Ethernet = 16

Allow Communication through Cell = 32

File • View • Configurat	ion Steps >> 🗸 Mod	ule >> < Application >> < Parameter >> Compile		
Enable Application		Set Application Properties		
Name	Enable	Select CL-T07-108-10 Parameters		
CAN Parameters		Enable All Disable All		
Module Parameters	ENABLED	Description	Param Name	Enable :
Telematics (Paid Service)		x-axis tilt	X_tilt	
Reflector (Paid Service)		y-axis tilt	Y_tilt	
FTP config		z-axis tilt	Z_tilt	
WIFI		WIFI connection	WIFI_connect	
		Reflector URL	Reflector_url	ENABLED
		Reflector Status	Reflector_status	ENABLED
		Pin: A, Connector: 11, Description: Keyswitch (Switched Battery)	Input0	
		Pin: A, Connector: 12, Description: VTD	Input1	
All • items per page	Ċ	Pin: A, Connector: 18, Description:	Output0	
	1 - 7 of 7 items	All V items per page		1 - 23 of 23 items 💍

Figure 56: Reflector URL and Status Properties



• Acc_mag

Total force magnitude. Currently only 2G mode is supported. Value Range:

12bit resolution = 0 - 4096

In 2G (default) mode the sensitivity is 1024 counts/g.

Note: Below is an image showing the orientation of the X, Y, and Z axis for the module. See <i>Figure 57





• y-axis acceleration

Acceleration in the y-axis. Currently only 2G mode is supported. Value Range:

12bit resolution = 0 - 4096

In 2G (default) mode the sensitivity is 1024 counts/g.

• z-axis acceleration

Acceleration in the z-axis. Currently only 2G mode is supported. Value Range:

12bit resolution = 0 - 4096

In 2G (default) mode the sensitivity is 1024 counts/g.



• x-axis acceleration

Acceleration in the x-axis. Currently only 2G mode is supported. Value Range:

12bit resolution = 0 - 409612bit resolution = 0 - 4096In 2G (default) mode the sensitivity is 1024 counts/g.

Note: Below in <u>*Figure 58*</u> is an image showing the various module mounting orientations and the expected X, Y, and Z values when the module is not moving:



• **x-axis tilt** Tilt in the x axis Values:

+/- 180 degrees

• y-axis tilt Tilt in the y axis Values:

+/- 180 degrees

• z-axis tilt Tilt in the z axis Values: +/- 180 degrees


7.2.2.3 Telematics Application

Enable the Telematics application to send any of the Modules Status, CAN Status, or CAN parameter data to CANect® Portal. To connect to the CANect® Portal website, several properties have to be configured.



File • View • Configu	uration Steps >>	~	Module >> 🗸 Applica	tion >> ①	Parameter >> C	
Enable Application		^	Set Application Pro	perties		
Name ~	Ena v		Compile Show Pas	sword		
CAN Parameters	× ^		Description	~	Property	Value
Module Parameters					URL	www.hedonline.com
Telematics (Paid Service)					Customer Key	customer key
Reflector (Paid Service)					Port	8443
FTP config	0					
WIFI						

Figure 59: Telematics Properties

Telematics Properties:

• URL

A URL will be provided to each customer to access the CANect® Portal website. It must be typed in.

Note: Do not include "https://" prefix

- **Customer Key** Each customer shall receive a unique customer key that must be typed in.
- Port:

The Port is defaulted to 8443. This number does not need to be changed. Port is shown in case a port change is needed in the future.



7.2.2.4 Reflector Application

Enable <u>Reflector</u> to allow access to the module from a PC through View. *Note: Reflector is a Paid Service*



Figure 60: Reflector Properties

Reflector Properties:

- AUTOSTART_HTTPS
 - Allow HTTPS access.
 - Checked=enabled
 - Unchecked=disabled

• AUTOSTART_SSH

Allow SSH access.

- Checked=enabled
- Unchecked=disabled

• AUTOSTART_WEBSOCKET

Allow WEB sockets.

- Checked=enabled
- Unchecked=disabled

• WIFI

Allow Communication through WIFI

- Checked= enabled
- Unchecked=disabled

• ETHERNET

Allow Communication through Ethernet

- Checked=enabled
- Unchecked=disabled
- CELL

Allow Communication through Cell

• Checked=enabled



• Unchecked=enabled

The **Compile** button will generate the file that can loaded to the module. The file is created in Folder/File named YalerTunnel/YalerTunnel.

Note: File name should not be modified.

File • View • Config	uration Steps	>> 🗸	Module >> Application >>	Parameter >> Compile	
Enable Application		-	Set Application Properties		
Name ~	Ena ~		Compile Show Password		
CAN Parameters		^	Description ~	Property ~	Value
Module Parameters			User name of login	FTP_USER_NAME	
	Fig	ure	61: Compile Button		

7.2.2.5 FTP Application

The FTP Application allows the user to configure how the collected log files are automatically sent to the FTP site. This is easier than manually retrieving the files from the module. It also lets users enable or disable a <u>SFTP</u> connection.

Enable the <u>FTP</u> application to automatically move the log files on the module to the set FTP site.



Figure 62: FTP Properties

FTP Properties:

FTP_USER_NAME

The username needed to log onto FTP site.

- **FTP_PWD** The password needed to log onto FTP site.
- **FTP_URL** The URL needed to access the FTP site.



• FTP_SUB_DIR

Specify a folder where module log files will be placed. Inside the folder each module will create another folder using its serial number. The serial number folder will contain the stored logs.

• SFTP_ENABLE

Switch between secure FTP (SFTP) and standard FTP

The **Compile** button will generate the file that can be loaded on the module. File name: *perm_settings.cfg*

Note: The file name should **not** be modified.



The **Show Password** button will show the text string entered for the password instead of the ***.

File • View • Config	uration Steps	>> 、	✓ Module >>	Application >>	• () Para	ameter >> Compile		
Enable Application Set Application Properties								
Name ~	Ena ~		Compile	Show Password				
CAN Parameters		^	Descriptio	n	~	Property	 Value 	
Module Parameters			User nam	User name of login FTP_USER_NAME				
Figure 64. Show Deserved Button								

Figure 64: Show Password Button

7.2.2.6 WIFI Application

<u>Enable the WIFI application</u> to setup the Host and Client settings. Up to 20 networks can be defined.

Note: This application is only available if the CANect module has Wi-Fi.

File ▼ View ▼ Con	figuration Steps >> 🗸	Module >> < Application >> <	Parameter >> Compile						
Enable Application	î	Set Application Properties							
Name :	Enable :	Compile Show Password							
CAN Parameters		Description	Property	Value					
Module Parameters	ENABLED	SSID (0-32 characters)	APN_SSID						
Telematics (Paid Service)	Z	Password (8-63 characters)	APN_PWD	***					
Reflector (Paid Service)		Channel	APN_CHANNEL	Autoselect					
FTP config		Max Connections	APN_MAX_CONNECTIONS	5					
WIFI		Add × Delete Up Down							
Ethernet	¥ ~	Priority	SSID (0-32 characters)	Password (8-63 characters)					
	_								
All 🔹 items per pag	e Č								
	1 - 7 of 7 items		✓ items per page	No items to display					

Figure 65: WIFI Properties

APN WIFI Properties:

• APN_SSID:

APN is a term for a network name. When a wireless network is set_up, a name is given to it to distinguish it from other networks in the area. The name is shown when a computer tries to connect to the wireless network. Use %S to insert the CANect® module's serial number.



Note: Network names need to be unique. This property does not work if there are networks in the area with the same name. The SSID name can be a max of 32 bytes long.

• APN_PWD:

Password of the network to connect with.

• APN_CHANNEL:

The channel to connect on. The value defaults to Autoselect, so the module automatically detects and selects a WIFI channel from a saturated environment. To change the default value, click the Value field and choose a specific channel from the dropdown menu.

Set Application Properties			
Compile Show Password			Click to open a dropdown menu
Description	Property	Value	and choose a channel from the
SSID (0-32 characters)	APN_SSID		list
Password (8-63 characters)	APN_PWD	***	
Channel	APN_CHANNEL	Autoselect	•
Max Connections	APN_MAX_CONNECTIONS	Autoselect	^
Add × Delete Up Down		1	
Priority	SSID (0-32 characters)	3	
		4	
		5	
	 items per page 	A	Y

Figure 66 Channel Value Dropdown Menu

• APN_MAX_CONNECTIONS:

The max number of devices that can be connected at one time. This sets the maximum number of items that can connect to the CANect module at 1 time. The customer may want to change to only allow 1 at a time so that two techs are not changing things at the same time.

Client WIFI Properties

• SSID1-20:

Name of the network the module will connect with.

• PASSWORD1-20:

Password of the network the module will connect with.

• **PRIORITY1-20:**

Module will try to connect to the lowest priority number first. Range: 1 to 20.



The **Compile** button will generate the file that can loaded on the module.

File name: wifi_settings.cfg



The **Show Password** button will show the text string entered for the password instead of the ***.

File • View • Configura	tion Steps >>	~	Module >>	Application >	>> (!) Paran	neter >> Compile
Enable Application		•	Set Applic	ation Properties	5	
Name v E	Ena v		Compile	Show Password		
CAN Parameters	× ^		Descriptio	n	v	Property
WIFI	0					

Figure 68: Show Password Button

7.2.2.7 Ethernet Application

Enable the Ethernet Application to setup the Ethernet, IPv4, and 1Pv6 settings.



Figure 69: Ethernet Properties



Ethernet Properties:

MAC Address

Leave blank to have the module automatically set a MAC address. . Use a randomly generated MAC address or enter a MAC address to give the CANect module a static address.

Format

VV:VV:VV:VV:VV Where VV is 2 Hexadecimal numbers

• IPv4 Configuration Type

Automatic Manual – Must Configure the IPv4 Settings

• IPv6 Configuration Type

Automatic Manual – Must Configure the IPv6 Settings Ignore Automatic DCHP-Only Link-Local

• IPv4 IP Address

This is required if Manual IPv4 Configuration selected, optional otherwise.

Format

xxx.xxx.xxx.xxx/yy xxx must be between 0 and 255. yy must be between 0 and 32. If /yy is excluded, assume 24.

• IPv4 Gateway

Optional and requires IPv4 IP Address set. Format uuu.uuu.uuu

uuu must be between 0 and 255,

• IPv4 DNS

This is a semicolon separated list if multiple DNS addresses are listed. First address is used first, followed by seconds, etc Format

ddd.ddd.ddd;ddd.ddd.ddd (Optional) ddd must be between 0 and 255.



• IPv4 DNS-Search

Semicolon separated for multiple entries. Can be any length string, but if you need to limit string length allow at least 256 chars. Format

zzzzzzzzz;zzzzzzz zzzzzzzzz is the domain to append for dns lookups.

• IPv4 Route Metric:

The route metric is the default metric given to routes. The lower the number the higher the priority of connection to the Internet if connection is available.

Format

mmmmmm (Optional).

mmmmm: -1 to 4294967295.

If -1 then the route metric is chosen based on interface type and this is the default if not configured. A -1 means 100 for Ethernet, 500 for Wi-Fi, and 600 for Cell

• IPv6 IP Address

This is required if Manual IPv6 Configuration selected, optional otherwise Format

hhhh:hhhh:hhhh:hhhh:hhhh:hhhh:hhhh hhhh is 4 hexidecimal characters. Not all 8 hhhh values are required.

Below are various supported IPv6 address notations:

IPv6 address	Prefix length (bits)	Description	Notes
::	128	unspecified	Used for default route and <i>router</i> solicitations. cf. 0.0.0.0 in IPv4
::1	128	loopback address	cf. 127.0.0.1 in IPv4
::ffff:a.b.c.d	96	IPv4 mapped IPv6 address	The lower 32 bits are the IPv4 address. Used in socket API's to represent IPv4 hosts.
fe80::	10	link-local	Unroutable autoconfigured addresses used on a LAN, e.g. for DHCPv6
fc00::	7	unique local	Addresses used only within an <i>autonomous system</i> , unroutable globally. Cf. RFC 1918 addresses such as used in NAT.
ff00::	8	multicast	
2000::	3	global unicast	All global unicast addresses currently begin with 2.



• IPv6 Gateway:

Optional and requires IPv6 Address set Format

> gggg is 4 hexidecimal characters. Not all 8 gggg values are required.

• IPv6 DNS

Optional. This is a semicolon separated list if multiple DNS addresses are listed. First address is used first, followed by seconds, etc.

Format

• IPv6 DNS-Search:

Domain to append for DNS lookups. Semicolon separated for multiple entries.

Format

```
aaaaaaaa
```

aaaaaaaa: Can be any length string, but if you need to limit string length allow at least 256 chars.

• IPv6 Route Metric:

Optional, the route metric is the default metric given to routes. Format

nnnnn The lower the number the higher the priority of connection to the Internet if connection is available.

nnnnn: -1 and 1 to 4294967295.

If -1 then the route metric is chosen based on interface type and this is the default if not configured. A -1 means 100 for Ethernet, 500 for Wi-Fi, and 600 for Cell



7.3 Parameter Setup

Parameters are all the values that the user wants to monitor on the vehicle. The parameters are how the CANect module knows what data to log and how to present it. Parameters need to be set up to:

- Receive and transmit messages on the CAN bus.
- Log parameters on the module.
- Send and receive parameters in telematics.
- Send information to View

File • View •	Configuration Steps >> ✓ Module	>> < Application	>>	 Parameter 	>>	Compile	
	Figure 70: Paramete	r Configuration St	ep				

Parameter Tab

The Parameter List shows all the parameters added to the project.

File *	View Configuration Steps	>> √ Mo	idule >> 🗸 Application >> 🗸 Parameter >> Compile				
Parameter	Localization Units En	umeratior	Groups DM1\DM2 Faults Logging Presets				
Parameter	r List	^	Configuration Received Message Units				
Selected pa	rameter: parameter_for_test		Name: parameter_for_test		Groups		^
Drag a colu	imn header and drop it here to	- 1	Type: Standard Sync Custom API J1939 CAN Status CL-T07-108-10		Name	Member	
group by the	at column		Alias: Engine Temperature		All		^
Para	 Param Name 	1	Units \ Enumeration		Group 1		
	normalas fas kask	EA	Disable Units Enumeration		Group 2		
1	parameter_lor_test	1	Request Update		Group 3		
2	linked_parameter_for	1	Disable Standard Custom API		Group 4		
3	ParamConfig3		Set Parameter	I	Group 5		
4	ParamConfig4		Disable Standard Custom API		Group 6		
5	ParamConfig5		Data Logging				\sim
			Disable Enable		<		
			Telematics		(H)(-) 1	$(\mathbf{P})(\mathbf{H})$	
<	>	× 1	Disable Enable		All 🔻 I	tems per	
	1 2 3 🕨 🔳				page		
5	 items per page 	Ċ			NaN - Na	N of 7 item	s ¥
	1 - 5 of 100 item	s Y					

Figure 71: Parameter List

7.3.1.1 Parameter List Controls

Users can add, delete, or duplicate parameters. Add an empty parameter to create a new item and add in the information to be tracked. Delete a parameter if it isn't needed anymore. Duplicate a parameter if it is similar to another previously created parameter, and make necessary changes.



To add new parameters, click the **Add** button.

To delete a parameter, first select a parameter, and then click the **Delete** button.

To duplicate a parameter, first select a parameter, and then click the **Duplicate** button.



Figure 72: Parameter List Controls

Drag the divider bar left or right to see more configurations for the parameter. This shows the expanded parameter list, as pictured in <u>Figure 73</u>.

File •	View Configuration Steps	>> ✓ Mod	lule >> ✓ Application >> <mark>✓ Parameter</mark> >> Compile					
Parameter	Localization Units E	numeration	Groups DM1\DM2 Faults Logging Presets					
Parameter	List	^	Configuration Received Message Units					
Selected par	rameter: parameter_for_test		Name: parameter_for_test		Groups			^
Drag a colu	mn beader and dron it bere to		Type: Standard Sync Custom API J1939 CAN Status CL-T07-108-10		Name	~	Member	r
group by tha	at column		Alias: Engine Temperature		All			^
Para	Param Name	-	Enumeration		Group 1			
4	parameter for test	E	Sisable • Units C Enumeration		Group 2			
1	parameter_loi_test		Request Update		Group 3			
2	linked_parameter_for	1	Disable Standard Custom API		Group 4			
3	ParamConfig3		Set Parameter	I	Group 5			
4	ParamConfig4		Disable Standard Custom API		Group 6			
5	ParamConfig5		Data Logging					\checkmark

Figure 73: Divider Bar

Expanded Parameter list:

Parameter Lis	t				
Selected parame Add × Delet Drag a column h	ter: ParamConfig3 Duplicate eader and drop it here to g	proup by that c	olumn		
Param ID 🗸	Param Name 🗸 🗸	Alias v	Enumeration ~	Units ~	Rec Message ID * ~
3	ParamConfig3				
4	ParamConfig4				0
5	ParamConfig5				0
6	ParamConfig6				0

Figure 74: Expanded Parameter List



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7.3.1.2 Parameter - Configuration Tab

The Configuration tab sets up how the parameter is to collect data from the CAN bus. This tab also shows what groups the parameter is located in.

Configu	ration	Received Message							
Name:	ParamC	onfig1	Groups						
Туре:	Stand	ard OSync OCustom API OJ1939 OCAN Status OCL-T07-108-10 Parameter	Name ~	Member					
Alias:		•	All		^				
Units \ E	Enume	ration							
Oisable	le OUr	its Enumeration String							
Reques	st Upda	te							
 Disabl 	le OSt	andard Custom API							
Set Par	amete	·	1						
 Disabl 	le OSt	andard OCustom API							
Data Lo	ogging								
Disab	ole OE	nable	<	>	Ť				
Telema	tics		(H) (H) (H)						
Disab	ole O Er	nable	All v ite	ms per pag	e				
			NaN - NaN of	1 items	Ċ				

Figure 75: Parameter Configuration Tab

Parameter Configuration Properties:

• Name:

Type the name of the parameter. If the parameter is predefined from the Module or CAN Parameters, the name is fixed. This name is only used to identify the name within Composer.

• Type:

Type of parameter selected. Options are:

- Standard (Default) Select Standard to define the raw data from a CAN message, allows conversions.
 - Can convert say an incoming value of Celsius to Fahrenheit, or engine RPM from 0.125 RPM\bit to 1 RPM\bit
- Sync Select sync to attach parameter to another parameter. Sync'd parameters will be passed with the parent parameter when called.

Note: Units or enumeration will not be used in logging, in View, or in *Portal when sync is selected.*

- Custom API Select custom API when assigning parameter through software configuration. Custom API reserves an ID to be filled the custom software application.
 - The parameter's value will be generated by custom software created by the user. The custom software is written inside of the Linux VM, not within Composer and should be used by advanced users only.
- J1939 Select J1939 to read DM1/DM2 or VIN messages from the CAN bus.



- CAN Status Automatically selected when a CAN status parameter is selected.
- *Note: Cannot be selected for a user-created parameter.*
- Module Parameter Automatically selected when a Module status parameter is selected.
 - *Note: Cannot be selected for a user-created parameter.*

The Sim_ID parameter is automatically created when the CANect module selected has a cellular modem and cannot be deleted by the user.

• Alias:

Shows the alias name from the Languages tab. If alias is used, local web sites will show the translated name of the parameter per the set language.

• Units:

Data shown on web site or in logged files can be converted into real units. Selecting units will enable the units tab within the parameter. Unit presets must be configured before unit options are selectable.

Configuration	Received Message	Units	
Parameter Un	its		•
Units: temperat	ure • Labe	I: Celsius	s Label for Logging: Celsius

• Enumeration:

Data shown on web site or in logged files can be converted into enumerated values. Selecting enumeration will enable the enumeration tab within the parameter. Enumeration presets must be configured before enumeration options are selectable.

Configuration	guration Received Message Enumeration							
Parameter Enumeration								
Enumeration: Er	Enumeration: Engine State							
Figure 77:	Enumeration T	ab						

• String:

Data shown on web site or in logged files can be converted into strings. This displays the value converted to ASCII characters. *Note: Only alphanumeric characters are supported.*

• Request Update:

Selecting Request Update will enable the Request Update tab within the parameter. This allows the user to transmit a CAN message on report rate or automatically or by setting a transmit rate.





Figure 76: Units Tab

There are three Request Update options: Disable, Standard, and Custom API. Custom APIs allows the user to write C code for parsing the message. By enabling it, HED expects the user to go into a Linux VM and add their code in.

Configuration	Received Message	Request Update	
Name: Para Type: • Sta Alias:	mConfig3 ndard ○Sync ○Cust	om API OJ1939 O)CAN Status OCL-T07-108-10 Parameter
Units \ Enum	neration	String	
Request Up	date		
O Disable 😐	Standard Ocustom Al	P	
Set Paramet	er		
Disable	Standard Ocustom Al	PI	

Figure 79: Request Update Options

Selecting the Standard or Custom API options opens the Request Update tab.

• Set Parameter:

Selecting Set Parameter will enable the Set Parameter tab within the parameter. This allows the user to transmit a CAN message when the parameter is set in View or Portal. The parameters values will be filled in the Data insert Location. Remaining bytes can be preloaded.

Config	guration	Received Me	ssage Re	quest Update	Set Parar	neter	Logging Tele	matics		
CAN B	us:	CAN 1		Identif	ier (0 - 1FFF	FFFF HE	EX)	1FFFFF	F	
Identifi	ier Type: Extended (29) 🔻 Data Bytes (1-8): 8 🔹									
Data										
		00	00	00 00	00	00	00	00		
Data I	Insertion	Location								
Endia	n:	LSB First	×	Start Bit (0 - 6	3): 0	;	Length (1 - 32):	16	
A1		fx								
	A	В	С	D	E	F	G	н	1	
1		Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	
2	Byte 0	< 7	< 6	< 5	< 4	< 3	< 2	< 1	< 0	
3	Byte 1	15	< 14						< 8	
4	Byte 2	23	22	21	20	19	18	17	16	
5	Byte 3	31	30	29	28	27	26	25	24	
6	Byte 4	39	38	37	36	35	34	33	32	

Figure 80: Set Parameter Tab

• Data Logging:

. Enables the Logging tab where user can set how and when to log the parameter locally on the CANect module.

Configuration	Received Message	Logging			
Logging					
Use:	Logging Pre	esets OCustom			
Select Preset:	Default		 Rate Limit (ms): 	1000	*
Log on Shutdown	. ●Off ○On		Hysteresis	0.00	





• Telematics:

Select to send parameter to CANect® Portal. Enables the Telematics tab where the user configures when the parameter gets transmitted to Portal. This setting is only available when the Telematics application is enabled.

Received Message	Telematics
 Telematics F 	Presets Custom
Default	*
: Off On	
	Received Message Telematics F Default Off On

Figure 82: Telematics Tab

• Groups:

Show groups that the parameter is assigned to. It also allows the user to assign it to groups that have been already created, by checking or unchecking the box. By default, a parameter has to be part of the "All" group.

Configuration	Received Message		
Name: ParamO	config1	Groups	
Type: • Stand	ard OSync OCustom API OJ1939 OCAN Status OCL-T07-108-10 Parameter	Name	~ Member
Alias:	v	All	
Units \ Enume	ration		
●Disable ○Ur	hits OEnumeration OString		
Request Upda	ite		
• Disable OSt	andard Ocustom API		
Set Paramete	r	1	
Disable St	andard Custom API		
Data Logging			
Disable E	nable	<	>
Telematics		() () 1	() ()
• Disable OE	nable	All •	items per page
		NaN - NaN	of 1 items d

Figure 83: Groups Pane



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7.3.1.3 Parameter - Received Message Tab

Use the Receive Message tab to configure the CAN data to be received.

Joining	guration	Received I	Message									
lessa	ige											
AN B	Bus:	CAN 1		* Ide	ntifier (0 - 1	FFFFFFF H	EX)	000000	00			
lentifi	ier Type:	Extended	(29)	• Ide	ntifier Mask	(0 - 1FFFF	FFF HEX)	1FFFFF	FF	Data Bytes (1-8):	8	÷
Da ^t	ta Filter											
ata P	Parse Field	ł										
indiar	n:	LSB First	¥		Start Bit (0)- 63):	0	* *	I	Length (1 - 32):	16 *	
Mess	sage Scl	hema										
<u> </u>	4	B	С	D	E	F	G	н	1			
1	0	Bit 7					Bit 2	Bit 1	Bit 0			
1 2	Byte 0	Bit 7	Bit 6 < 6	Bit 5 < 5	Bit 4 < 4	Bit 3 < 3	Bit 2 < 2	Bit 1 < 1	Bit 0 < 0	Î^		
1 2 3	Byte 0 Byte 1	Bit 7 < 7 15	Bit 6 < 6 < 14	Bit 5 < 5 < 13	Bit 4 < 4 < 12	Bit 3 < 3 < 11	Bit 2 < 2 < 10	Bit 1 < 1 < 9	Bit 0 < 0 < 8	Â		
1 2 3 4	Byte 0 Byte 1 Byte 2	Bit 7 < 7 15 23	Bit 6 < 6 < 14 22	Bit 5 < 5 < 13 21	Bit 4 < 4 < 12 20	Bit 3 < 3 < 11 19	Bit 2 < 2 < 10 18	Bit 1 < 1 < 9 17	Bit 0 < 0 < 8 16	Â		
1 2 3 4 5	Byte 0 Byte 1 Byte 2 Byte 3	Bit 7 < 7 15 23 31	Bit 6 < 8 < 14 22 30	Bit 5 < 5 < 13 21 29	Bit 4 < 4 < 12 20 28	Bit 3 < 3 < 11 19 27	Bit 2 < 2 < 10 18 28	Bit 1 < 1 < 9 17 25	Bit 0 < 0 < 8 16 24	-		
1 2 3 4 5 6	Byte 0 Byte 1 Byte 2 Byte 3 Byte 4	Bit 7 < 7 15 23 31 39	Bit 6 < 8 < 14 22 30 38	Bit 5 < 5 < 13 21 29 37	Bit 4 < 4 < 12 20 28 38	Bit 3 < 3 < 11 19 27 35	Bit 2 < 2 < 10 18 28 34	Bit 1 < 1 < 9 17 25 33	Bit 0 < 0 < 8 18 24 32			
1 2 3 4 5 6 7	Byte 0 Byte 1 Byte 2 Byte 3 Byte 4 Byte 5	Bit 7 < 7 15 23 31 39 47	Bit 6 < 6 < 14 22 30 38 48	Bit 5 < 5 < 13 21 29 37 45	Bit 4 < 4 20 28 38 44	Bit 3 < 3 < 11 19 27 35 43	Bit 2 < 2 < 10 18 28 34 42	Bit 1 < 1 < 9 17 25 33 41	Bit 0 < 0 < 8 18 24 32 40			

Received Message Parameter Properties:

Note:

If the configuration type is set to Custom API, the received tab will not be visible.

• CAN Bus:

Set the CAN Bus to receive the message on.

Note:

If the configuration type is set to Sync, this field follows the parent parameter.

• Identifier Type:

11 bit or 29 bit message type.

Note:

If the configuration type is set to Sync, this field follows the parent parameter. If the configuration type is set to DM1/DM2 Faults, this field is not available.

• Identifier:

Based on Identifier Type, enter the 11 bit or 29 bit identifier to receive.

Note:

If the configuration type is set to Sync, this field follows the parent parameter. If the configuration type is set to DM1/DM2 Faults, this field is not available.

• Identifier Mask:

11 bit or 29 bit identifier mask. The mask determines if the bit in the incoming CAN message needs to match the configured identifier.

0=Does not have to match

1= Does have to match



Note:

If the configuration type is set to Sync, this field follows the parent parameter. If the configuration type is set to DM1/DM2 Faults, this field is not available.

• Data Bytes:

Sets how many data bytes the CAN message contains. Changing the number of data bytes may update changes the Message Schema, Data Filter, Start Bit, and Data Length fields. The message being received must have the same number of data bytes otherwise the message will not be received.

Note:

If the configuration type is set to DM1/DM2 Faults, this field is not available.

• Data Filter:

Use the data filter to set data bytes as additional selection criteria. Data field contains Data and Masks fields:

Data Filter									
Data (0 - FF HEX)	00	00	00	00	00	00	00	00	
Mask (0 - FF HEX)	00	00	00	00	00	00	00	00	
		T.*	05.0						

Figure 85: Data Filter

- Data set the data bits to receive.
- Mask The mask determines if the bit in the incoming CAN message needs to match the configured identifier.
 0=Does not have to match

1= Does have to match

Note:

If the configuration type is set to DM1/DM2 Faults this field is not available.

• Endian:

Tell the application how to read the bytes of the CAN data.

- LSB First Data is packed least significate byte first. Byte 0 is least significant byte of data.
- MSB First Data is packed most significant byte first. Byte 0 is most significant byte of data

Note:

If the configuration type is set to DM1/DM2 Faults, this field is not available.

Data Parse	Field				
Endian:	LSB First 🔹	Start Bit (0- 63):	0 🗘	Length (1 - 32):	16 🗘
	LSB First				
	MSB First				

Figure 86: Endian Drop Down Menu Options



• Start Bit:

Bit in the CAN message to start reading from.

Note:

If the configuration type is set to DM1/DM2 Faults this field is not available.

• Length:

How many bits to read from the start bit.

Note:

If the configuration type is set to DM1/DM2 Faults this field is not available.

• Message Schema:

Visual diagram of the CAN data to be received. The highlighted bits will be used to set the parameter data.

Note:

If the configuration type is set to DM1/DM2 Faults, Message Schema is not available.

A	B	С	D	E	F	G	н	1
	Bit 7	Bt 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
Byte 0	<7	< 0	< 5	< 4	<1	<2	<1	< 0
Byte 1	15	< 14	< 13	< 12	<11	< 10	< 9	< 8
Byte 2	23	22	21	20	19	18	17	10
Byte 3	31	30	29	28	27	28	25	24
Byte 4	39	38	37	38	35	34	33	32
Byte 5	47	48	45	44	43	42	41	40
Byte 6	55	54	63	62	61	50	49	48
Byte 7	63	62	61	60	59	58	57	56

Figure 87: Highlighted CAN Data

If the configuration mode is set to J1939, two sub fields are shown: Faults and Source Address.

Parameter Type: • DM1 • DM2 • VIN CAN Bus: CAN 1 Faulte: • O	Configuration	Received Message		
CAN Bus: CAN 1 Source Address (0 - FF HEX): 00	Parameter Type:	●DM1 ○DM2 ○	VIN	
Faulta	CAN Bus:	CAN 1	•	Source Address (0 - FF HEX): 00
rauits.	Faults:		•	

Figure 88: Faults and Source Address Fields

• Faults:

Link to faults created in the DM1/DM2 Faults tab. FMI and SPN will be translated into the text created in the Faults tab.

• Source Address:

The source address of the controller sending the J1939 message.



7.3.1.4 Parameters - Request Update

Sometimes the module needs to request information from other systems on the CAN bus, because the parameter that the user wants is not being broadcast on the CAN bus.

For example, the user needs to send a message at a periodic rate to an Engine controller. In response, the Engine will send a message to the CANect Module with the information requested. The user would configure the request message by enabling the request update, configuring the rate to send the request, and the CAN message to send.

If the transmit rate is set to 0, the request is only transmitted when a user requests the parameter on View or Portal. Each user request will send on 1 request CAN message.

Configuration	Received Message	Request Update								
Transmit Rate (ms	s): 0	*	-							
CAN Bus:	CAN 1	•	Identifier (0 - 1FFFFFF HEX)					000000		
Identifier Type:	Extended (29)	•	D	Data Bytes (1-8): 8						A Y
Data										
	00	00	00	00		00		00	00	

Figure 89: Request Update Tab

Request Update Parameters Properties:

• Transmit Rate:

The rate the CAN message described in the Request Update will be transmitted. Rate is in milliseconds.

- CAN Bus: Set the CAN Bus to transmit the message on.
- Identifier: Based on Identifier Type, enter the 11 bit or 29 bit identifier to transmit.
- Identifier Type: 11 bit or 29 bit message type
- **Data Bytes:** Sets how many data bytes the CAN message contains.
- **Data:** Set the data bytes of the CAN message.



7.3.1.5 Parameter - Set Parameter

Some of the defined parameters can be updated, such as the configuration settings for speed or time. This is how the CANect module will send the new value to the other unit on the vehicle.

Confi	guration	Received Me	ssage Re	equest Update	Set Paran	neter Log	ging Teler	matics		
CAN B	lus:	CAN 1	•	Identif	ier (0 - 1FFF	FFFF HEX)		1FFFFF	F	
dentifi	er Type:	Extended	(29) •	Data E	Bytes (1-8):			8 *		
Data										
		00	00	00 00	00	00	00	00		
Data	Insertion	Location								
Endia	in: [SB First	¥	Start Bit (0 - 6	3): 0	*	Length (1 - 32):	16	
A1		f _x								
	A	В	С	D	E	F	G	н	1	
1		Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0	
- 2	Byte 0	< 7			< 4			< 1	< 0	
3	Byte 0 Byte 1	< 7 15	< 6		< 4 < 12			< 1 < 9	< 0	
2 3 4	Byte 0 Byte 1 Byte 2	< 7 15 23	< 6 < 14 22	< 5 < 13 21	< 4 < 12 20	< 3 < 11 19	< 2 < 10 18	< 1 < 9 17	< 0 < 8 16	
2 3 4 5	Byte 0 Byte 1 Byte 2 Byte 3	< 7 15 23 31	< 6 < 14 22 30	< 5 < 13 21 29	< 4 < 12 20 28	< 3 < 11 19 27	< 2 < 10 18 26	< 1 < 9 17 25	< 0 < 8 16 24	
2 3 4 5 6	Byte 0 Byte 1 Byte 2 Byte 3 Byte 4	 7 15 23 31 39 	< 6 < 14 22 30 38	<5 <13 21 29 37	< 4 < 12 20 28 36	< 3 < 11 19 27 35	< 2 < 10 18 26 34	< 1 < 9 17 25 33	< 0 < 8 16 24 32	-
2 3 4 5 6 7	Byte 0 Byte 1 Byte 2 Byte 3 Byte 4 Byte 5	<7 15 23 31 39 47	< 6 < 14 22 30 38 46	< 5 < 13 21 29 37 45	< 4 20 28 36 44	< 3 < 11 19 27 35 43	< 2 < 10 18 26 34 42	< 1 < 9 17 25 33 41	< 0 < 8 16 24 32 40	
2 3 4 5 7 8	Byte 0 Byte 1 Byte 2 Byte 3 Byte 4 Byte 5 Byte 6	<7 15 23 31 39 47 55	< 6 < 14 22 30 38 46 54	< 5 < 13 21 29 37 45 53	< 4 < 12 20 28 36 44 52	< 3 < 11 19 27 35 43 51	<2 <18 18 26 34 42 50	< 1 < 9 17 25 33 41 49	< 0 < 8 16 24 32 40 48	

Figure 90: Set Parameter Tab

Set Parameter Properties:

- CAN Bus: Set the CAN Bus to transmit the message on.
- Identifier: Based on Identifier Type, enter the 11 bit or 29 bit identifier to transmit.
- Identifier Type: 11 bit or 29 bit message type
- **Data Bytes:** Sets how many data bytes the CAN message contains.
- **Data:** Set the data bytes of the CAN message.
- **Data Insert Location:** Set the location within the data bytes that the parameter value will be inserted. Any bits set in the Data fields will be overwritten by the parameter value set here.



7.3.1.6 Parameter - Units Tab

The Units tab gives the user the ability to convert the received value to the proper units. Sometimes, the value sent out on the CAN bus may not be in the correct units for displaying. For example, in j1939, engine RPM is sent in 0.125 RPM per bit. When the CANect module reads the data value, it reads it as a whole number. With the Units tab, an engine RPM value of 8,000 is multiplied by 0.125 to get 1,000 RPM.

The parameters Units tab is enabled when its configuration for <u>Data Logging</u> is enabled.

Configuration	Received Messag	je Units				
Parameter Un	its					
Units: temperat	ure 🔹 La	abel: Celsiu	s *	Label for Logging:	Celsius	•

Figure 91: Parameter Units Tab

Units Parameter Properties:

• Units:

Select the how to convert the parameter from a list of the conversions already defined in the main units tab

• Label:

The default unit used for viewing the parameter in CANect View and Portal. This dropdown is also populated from the main Units tab.

• Label for logging:

The specific unit used when logging the parameter to a file. This dropdown is also populated from the main Units tab.

• This setting won't affect Portal or View, and changes on Portal or View won't affect data logging.



7.3.1.7 Parameter - Enumeration Tab

This tab can be used to display text, rather than a numeric value. An example of this is when displaying On or Off, rather than 0 or 1.

Set up <u>enumerations</u> for a parameter in the Enumeration tab. The parameters Enumeration tab is enabled when its configuration for <u>Data Logging</u> is enabled.



Enumeration Parameter Settings:

• Enumeration:

Select the how to convert the parameter value to text from a list of the enumerations already defined in the main enumerations tab

7.3.1.8 Parameter - Logging Tab

This tab configures how the individual parameter will be logged locally on the CANect module. The presets are set up so that rather than configuring the same thing 100 times for 100 parameters, the user configures it once and reuses it.

The parameters Logging tab is enabled when its <u>configuration for Data Logging</u> is enabled.

Configuration	Received Message	Logging				
Logging						
Use:	Logging Pre	sets OCustom				
Select Preset:	Default		٣	Rate Limit (ms):	1000	× v
Log on Shutdown	. ●Off ○On			Hysteresis	0.00	* *

Figure 93: Parameter Logging Tab

Logging Parameter Settings:

- Use:
 - Options
 - Logging Presets- Drop down list of logging modes setup in the main Logging Preset tab.
 - Custom- User selects from several logging types.

• Select Preset:

Select the datalogging operations from the drop down, which shows the preconfigured presets from the main Logging tab.

Use:	Logging Presets Custom				
Select Preset:	Default	•	Rate Limit (ms):	1000	*
Log on Shutdown:	●Off ⊖On		Hysteresis	0.00	- A - V

Figure 94: Select Preset

All other fields are disabled and populated with presets, based on how the preset is configured.



• Select Logging Type:

Shown when Custom is selected.

	cicetea.				
Use:	Logging Presets Custom				
Select Logging Type:	On Change	•	Rate Limit (ms):	1000	*
Log on Shutdown:	● Off ◯ On		Hysteresis	0.00	*
I	Figure 95: Select Loggi	ng	Туре		

Fields are enabled per logging type.

- Types:
 - On Startup Logs the first CAN Parameters message received upon module start.
 - Non-CAN Parameters are logged upon the first valid reading of either the predefined parameters for VPCA or the CHAT based parameter.

annotor	•		
	Select Logging Type:	On Startup	۳
	Log on Shutdown:	● Off On	
Fig	gure 96: On Startup	Logging Type	

- On Received Logs the first CAN Parameters message received upon module start.
 - Non-CAN Parameters are logged upon the first valid reading of either the predefined parameters for VPCA or the CHAT based parameters.

Select Logging Type:	On Received	Ŧ				
Log on Shutdown:	● Off ◯ On					
Figure 97: On Received Logging Type						

- At Rate Logs the received value of the first CAN Parameters message at the rate specified. Rate set in milliseconds; current value is stored regardless of if it got an updated value from the last time it was logged
 - Non-CAN Parameters are logged upon the first valid reading of either the predefined parameters for VPCA or the CHAT based parameters.

I		 		_				
Select Telematics Type:	At Rate		,	-	Rate Limit (ms):	5000	*	
Log on Shutdown:	● Off ◯ On	_	_					
	T1 0	 -	-					

Figure 98: At Rate Logging Type

• On Change - Log only when data changes, no faster than the rate limit. Data must have changed larger then <u>Hysteresis</u>.

Select Telematics Type:	On Change 🔹	Rate Limit (ms):	5000	*
Log on Shutdown:	● Off _ On	Hysteresis	0.00	*

Figure 99: On Change Logging Type



USER MANUAL

• Outside Range - Log outside the low and high ranges. Module will also log data once crossing either the high or low range. Data must have changed more than the Hysteresis to send

Select Telematics Type: Ou	itside of Range 🔹	Rate Limit (ms):	5000	+	Low Range:	0.00	*
Log on Shutdown:)ff ⊖On	Hysteresis	0.00	*	High Range:	0.00	*
Figure	100: Outside of Ra	nge Logging Ty	be				

• Inside Range- Log inside the low and high ranges. Module will also log data once crossing either the high or low range.

Select Telematics Type:	Inside of Range 🔹	Rate Limit (ms):	5000	*	Low Range:	0.00	*		
Log on Shutdown:		Hysteresis	0.00	*	High Range:	0.00	*		
Figure 101: Inside of Range Logging Type									

- On Shutdown- When the module detects shutdown sequence has started it will log the last known parameter value.
 - If doesn't get a valid value, the module logs a NULL value.

Select Logging Type:	On Shutdown	

Figure 102: On Shutdown Logging Type

• Log on Shutdown

When the module detects shutdown sequence has started it will log the last known parameter value. This can be selected for any of the types, regardless of rate limit, hysteriesis, etc..

Use:	Logging Presets Ocustom					
Select Logging Type:	On Change	•	Rate Limit (ms):	1000	*	
Log on Shutdown:	● Off On		Hysteresis	0.00	•	

Figure 103: Log on Shutdown Options



7.3.1.9 Parameter - Telematics Tab

The parameter's Telematics tab is enabled when the <u>Telematics application</u> is enabled <u>and</u> the <u>parameter configuration for telematics</u> is enabled.

Configuration	Received Message	ved Message Telematics						
Telematics								
Use:	Telematics F	Telematics Presets Ocusto						
Select Preset:	Default	Default						
Log on Shutdowr	n: Off On	●Off On						

Figure 104: Parameter Telematics Tab

Telematics Parameter Settings:

• Use:

Options

- Logging Presets- Drop down list of logging modes setup in the main Logging Preset tab.
- Custom- User selects from a several logging types.

• Select Preset:

Drop down shows the preconfigured presets from the main Telematics tab.

Configuration	Recei	ved Message	ved Message Telematics					
Telematics								
Use:		 Telematics 	om					
Select Preset:		Default						
Log on Shutdowr	1:	●Off ()On						

Figure 105: Select Telematics Preset

All other fields are disabled and populated with the presets.

Tele-cache

If the module is not in communication with the Portal, Tele-cache stores data on disk. Then when the module gets connected, Tele-cache will push all the stored information up to the Portal.

• Select Telematics Type: Shown when Custom is selected.

Configuration	Receive	d Message	Telematics							
Telematics										
Use:		Telematics F	Presets OCusto	om						
Select Telematics	s Type: O	n Demand	•							
Log on Shutdowr	n: 📃 🔍	Off On								

Figure 106: Select Custom Telematics Type



SER MANUAL

Fields are enabled per Telematics type. Types:

• On Demand – No data is transmitted to CANect® Portal until requested by manually requested by CANect® Portal



- At Rate Send parameter to CANect® Portal at the rate specified. Rate
- Data must have changed larger then Hysteresis.

Select Telematics Type:	On Change 🔹	Rate Limit (ms):	5000	*
Log on Shutdown:	● Off _ On	Hysteresis	0.00	*

Figure 110: On Change Telematics Type

• Outside Range - Transmit outside the low and high ranges. Module will also transmit data once crossing either the high or low range.

Select Telematics Type: Outside of Range		Rate Limit (ms):	5000 🗘		Low Range:	0.00	*						
Log on Shutdown:	● Off _ On	Hysteresis	0.00	*	High Range:	0.00	* *						
	Figure 111: Outside of Range Telematics Type												

Inside Range - Transmit inside the low and high ranges. Module will also 0 transmit data once crossing either the high or low range.

Select Telematics Type:	Inside of Range 🔹	Rate Limit (ms):	5000	*	Low Range:	0.00	*	
og on Shutdown:	● Off On	Hysteresis	0.00		High Range:	0.00	* *	

Figure 112: Inside of Range Telematics Type

Log on Shutdown

When the module detects that the shutdown sequence has started, it will send the last known parameter value to CANect® Portal. This can be selected for any of the types.

Configuration	Recei	ved Message	Telematics	
Telematics				
Use:		Telematics P	resets 🖲 Custo	m
Select Telematic	s Type:	On Demand		
		on bonnana		

Figure 113: Log Telematics on Shutdown Options



7.3.2 Localization Tab

The Localization tab is used to add translations to the project. Every time a language is added a new column will be added to the labels where the text can be translated.

Export	Import Defau	•										
Languag	jes					Labels			Label Linl	ks		
Add Delete						Add × Delete	Туре	~	Link			
ID ~	Label	~	Display As	~		Alias	~	English v				
1	English		English		^	engine		engine ^				

Figure 114: Localization Tab

Export Button:

Export the languages and its strings to be edited manually by a translation expert outside of Composer.

Steps:

1) Click **Export**, a temporary spreadsheet will be shown.

~	Home			Click to file in E	open Excel										
A	* <i>f</i> _x B	C	D	E	F	G	н	1	J	к	L	м	N	0	P
id	label														
D	language														
	engine	engine													
															-

Figure 115: Temporary Excel File

- 2) Click the folder icon to save the spreadsheet to a local Excel file.
- 3) Give the file a name and click save.

Export	×
File name: Workbook Save as type: Excel Workbook (xlsx) •]
Save	

Figure 116: Export File Dialog Box

- 4) Open Excel file.
- 5) Add new languages in columns to the right. Add new text with translations in rows.

	А	В	С	D
1	id	label	English	Spanish
2	o	languageId	1	2
3	0	displayName	English	Spanish
4	1	engine	engine	motor

Figure 117: New Language and Translation

6) Save file.



Import Button:

Use the **Import** button to import the edited language file.

Steps:

1) Click the import button to open the import temporary view.



Figure 118: Import-Temporary View

- 2) Click the folder
- 3) Select the edited export file. The file will automatically load.



Figure 119: Auto-loaded Exported File

- 4) Click the + Import button.
 - a. If there are validation errors, they are shown in the error description pane.

Import From Excel				
				Í
Home				
D				
< A2 ▼ <i>fx</i>				>
AB	С	D	E	F
1 time mon june 5				fri june 9
2				
3 0.3229166666				
4 0 3333333333				
5 0.34375				
6 0.35416666666 edits for duane				
7 0.3645833333 edits for duane				
8 0.375 timesheets				reviewine parkerr docs that pdl sent
				v~
Sheet1 Sheet2 Sheet3				,
	Import Erroro			
Export to Excel				
Error Description		:	Severity : Action Taken	Phase :
Sheet Localization does not contain all colu	mns from the Excel Database Schema: exp	pected: 2, found: 0	Error Import Cance	led Schema Validating
All V iter	ns per page			1 - 1 of 1 items 💍





5) Review the Localization tab to ensure that the import worked correctly. Compare what was in the Excel file to what Composer is showing onscreen.

1					1			U			
Parameter	Localization	Units Enumeration	0	Groups	DM1\DM2 Faults	Logging Presets					
Export	Export Import Default Language: English Logging Default Language: English										
Language	es			Labels							
Add	elete			Add	× Delete						
ID ~	Label	 Display As 		Alias		- English	~	Spanish	~		
1	English	English	^	engine)	engine		motor			
2	Spanish	Spanish									

Figure 121: Localization Tab

Default Language:

The default language strings that will be used on View.

Logging Default Language:

Language strings that will be used in the log files.

Languages Pane:

Shows all the languages that have been configured.

Labels Pane:

Shows all the strings and converted text, and allows the user to reuse the translation in multiple places.

An Alias is what users name the localized language. It gets reused in the parameter and in units.



Figure 122: Labels Pane

Label Links Pane:

Shows which parameters are linked to a specific label.

In the Language Tab, describe each new <u>alias</u> across all languages. Text will be enumerated to the language selections.



7.3.3 Units Tab

The Units tab is used to set up the units to be used for one or multiple parameters. Data captured will have the units applied.

Parameter	Localization	Units	Enume	eration	Groups	DM1\DM2 Fa	aults	Logging P	resets					
Project Units Unit Options											Assigned F	aran	neters	
Add ×				Add	Add × Delete							v	Param Name	~
Units	~	Alias Gain Offset Type Min Max												
Figure 123: Units Tab														

Project Units Pane: See Figure 124

- To add project units, click the **Add** button.
- To delete project units, click the **Delete** button.
- To duplicate a project unit, click the **Duplicate** button.

Project Units		
Add × Delete Duplicate		
Units	~	
temperature		^
	a	

Figure 124: Project Units Pane Controls

Unit Options Pane: See Figure 125

Once a project unit is added it can be described in the unit options pane.

- To add a specific unit, highlight the desired unit in the Project Units pane and click the **Add** button in the Unit Options pane.
- To remove a specific unit, click the **Delete** button.

Feriegnheith	1	0	integer	-2147483648	2147483647
Celsius	1	-40	integer	-2147483648	2147483647
Alias	Gain	Offset	Туре	Min	Max
Add × Delete					
Unit Options					

Figure 125: Unit Options Controls

Adjust the following properties per <u>CAN message specification</u>.

Properties will be applied in the following order:

- Type Sets Integer or Double.
 - a. Integer is signed 32 bit.
 - b. Double is signed floating 64 bits. Can use decimal points in the gain and offset using this type.
 - 2) Gain CAN data (x)gain
 - 3) Offset Add the offset after the gain is applied (CAN data x gain) + offset
 - 4) Min Parameters value cannot go below the min.
 - 5) Max Parameters value cannot go above the max.

Assigned Parameters Pane:

Shows the parameters using the selected unit.



7.3.4 Enumeration Tab

The Enumeration tab is used to set up the enumeration to be used for one or multiple parameters. Data captured will have the units applied.

Parameter	Localization	Units	Enun	neration	Groups	DM1\DM2 Fa	ults	Logging Preset	S	
Project En	umerations	^		Enume	eration Iter	ns		Assigned F	arameters	
Add × D				Add	× Delete			Para v	Param Name	~
Name			~	Value	(DEC)	Alias				
			^				^			
			Fi	oure 12	26: Enun	neration tab				

If runtime value does not have an associated enumeration, then the value itself is displayed. If there is an associated enumeration, the string is displayed instead of the value.

Project Enumeration Pane: See Figure <u>127</u>

- To add project enumeration, click the **Add** button.
- To delete project enumeration, click the **Delete** button.
- To duplicate a project enumeration, click the **Duplicate** button.

Project Enumerations	
Add × Delete Duplicate	
Name	~
Engine State	
Figure 127: Enumeration	Pane

Enumeration Options Pane: See Figure 128

Once a project enumeration is added, it can be described in the Enumeration Items pane.

- To add the individual conversions to the enumerations, highlight the desired enumeration in the Project. Click the **Add** button in the Enumeration Items pane.
 - Give an alias for the enumeration. Either type in a new name to create a new alias or select one that has already been created.
- To remove an enumeration, click the **Delete** button.

Enumeration Items								
Add × Delete								
Value (DEC)	Alias							
0	off							
1	Starting							
2	Running							
Figure 128: Enumeration Pane Controls								

Assigned Parameters Pane:

Shows all the parameters using the selected enumerations.



7.3.5 Groups Tab

The Groups tab allows parameters to be assigned to groups. View can use this to request all the parameters assigned to a group with one command.

Parameter	Localization	Units	Enumeration	Groups	DM1\DM2	aults	Logging Presets	
Project Gr	roups					Assig	ned Parameters	
Add			Para	m ID 🕓	Param Name			
Name					~			
All					^			
			Figure	no 120. C	round Tob			

Figure 129: Groups Tab

Project Groups Pane: See Figure 130

Use the Add, Delete, and Duplicate buttons to manage groups.

F	Project Groups
	Add × Delete Duplicate
	Name
	All
	Group 2

Figure 130: Project Groups Controls

Assigned Parameters Pane: See Figure 131

Click the desired group to see parameters associated with it.

Project Groups	Assigned Parameters			
Add × Delete Duplicate	Param ID v Param Name			
Name	1 ParamConfig1			
All Group				
Group 2	Assigned Parameters			
	(Turumotors)			

Figure 131: Group-Associated Parameters

To assign a parameter to a group: See Figure 132

- 1) Click the Parameters tab
- 2) Click a parameter
- 3) Check the desired groups the parameter should be in.

Parameter L	.ist		Confi	guration	Received Message	Logging			
Selected para	meter: ParamConfig1		Name	Param	nConfig1			Groups	
			Type:	 Star 	ndard OSync OCustor	m API ⊖J1	939 OCAN Status OCL-TO	Name ~	Member ~
Drag a colum	n header and drop it here to	group by that column	Alias:			*		All	2
Para v	Param Name ~	Alias ~	Units	\ Enume	eration			Group 2	2
1	ParamConfig1	engine	• Dis	able OU	Inits OEnumeration O	String			
			Requ	est Upd	ate				
			• Dis	able OS	tandard OCustom API				
			Set P	aramete	er				
				100	4 1 D				

Figure 132: Assign Parameters to Groups



7.3.6 DM1\DM2 Faults Tab

Use the DM1\DM2 Faults Tab to enter in FMI and SPN codes. Then add descriptive text that the code will be translated into.

File • View • Configuration	n Steps >> 🗸	' Module >> 、	 Application >> 	/ Parameter 😕 🕻	Compile		Nume	ric Format: •HEX ODEC
Parameter Localization Units	Enumer	ation Groups	DM1\DM2 Fault	s Logging Presets	Telema	tics Presets		
Export Import				-				
Project Faults		Faults Item	ıs		*	Assigned	Parameters	
Add × Delete Duplicate		Add × D				Param ID	~	Param Name
Faults	~			Description				
	*	FMI	SPN	English				
					*			

Figure 133: DM1/DM2 Faults Tab

Export Import Buttons; See Figure 134

Use the **Export** button to export the Fault information to Excel.

Use the **Import** button to import the Fault information back into the project.

	Export	Import		
Fi	gure 13	34: Expo	rt and Import But	tor

Project Faults Pane: See Figure 135

Use the Add, Delete, and Duplicate buttons to manage Faults.

Add × Delete Duplicate	
Faults	
Fault 1	ļ
Eigure 135: Project Foults Pone Controls	

Faults Items Pane: See Figure <u>136</u>

When the parameter value is received, the user of the parameter will see the text description instead of the FMI and SPN numbers, if entered.

To add FMI and SPN descriptions, use the **Add** button and enter in the desired FMI, SPN, and Descriptions. To delete a FMI or SPN entry, use the **Delete** button.

Faults Items		
Add × Delete		
		Description
FMI	SPN	English
0001	0003	Engine Overtemp
0002	0002	Oil Temp High

Figure 136: Faults Items Pane

Assigned Parameter Pane:

The Assigned Parameter pane will show the parameters using the faults information.

Assigned Parameters	
Param ID 🗸	Param Name v
1	ParamConfig1

Figure 137: Assigned Parameters Pane



7.3.7 Logging Presets Tab

The Logging Presets tab is used to set up logging modes that can be used in multiple parameters.



Figure 138: Parameter Logging Presets Tab

Logging Presets: See Figure 139

Use the **Add** button to add a logging preset. Use the **Delete** button to delete a logging preset.

Logging Presets	
Add × Delete	
Logging Group	v
Default	

Figure 139: Logging Presets Controls

Logging Preset Properties:

Select a logging preset group and set the fields accordingly. The field settings will be used for every <u>parameter</u> that has been assigned this preset.

Logging Preset	Properties					
Logging Modes:	On Change		•			
Log on Shutdown:	●Off On					
Rate Limit (ms):	1000	* *		Hysteresis:	0.00	*

Figure 140: Logging Preset Properties

Assigned Parameters:

The parameters that are using the preset are shown in the Assigned Parameters Pane.

Assigned Parameters	
Param ID ~	Param Name
1	ParamConfig1

Figure 141: Assigned Parameters



7.3.8 Telematics Presets Tab

In order to view the Telematics Presets tab, the Telematics application must be enabled. The Telematics Presets tab is used to set up logging modes that can be used in multiple parameters.

Parameter Localization Units Enumeration Groups DM1\DM2 Faults Logging Presets Telematics Presets Telematics Presets Telematics Presets Assigned Parameters Add Elematics On Demand Image: Construction of Construction Image: Construction of Construction Param ID Param Name Default Image: Construction of Construction Image: Construction of Construction Image: Construction of Construction Image: Construction of Construction Image: Construction of Construction	File • View • Conf	iguration Steps >> ✓ Mod	dule >> 🗸 Application >> 🗸 F	Parameter >> Cor	npile	
Telematics Presets Assigned Parameters Add × Delete Telematics On Demand * Telematics Group * Assigned Parameters Default *	Parameter Localization	Units Enumeration	Groups DM1\DM2 Faults	Logging Presets	Telematics Presets	
Default	Telematics Presets Add × Delete Telematics Group		Telematics Preset Properties Telematics Modes: Log on Shutdown: • Off On	•	Assigned Param ID	Parameters
	Default	· · · · · · · · · · · · · · · · · · ·				

Figure 142: Telematics Presets Tab

Telematics Preset: See Figure 143

Use the **Add** button to add a telematics preset. Use the **Delete** button to delete a telematics preset.

Telematics Presets	
Add × Delete	
Telematics Group	-
Þefault	^

Figure 143: Telematics Presets Controls

Telematics Preset Properties:

Select a telematics preset group and set the fields accordingly. The field settings will be used for every <u>parameter</u> that has been assigned this preset.

Telematics Pres	et Properties
Telematics Modes:	On Demand 🔹
Log on Shutdown:	● Off ◯ On

Figure 144: Telematics Presets Properties

Assigned Parameters:

The parameters that are using the preset are shown in the Assigned Parameters Pane.

Assigned Parameters	
Param ID ~	Param Name ~
1	ParamConfig1

Figure 145: Assigned Parameters Pane



7.4 Compiling Project

The entire project needs to be compiled to generate the config.sql file, which is used by the CANect module. is accomplished by clicking the **Compile** button. The **Compile** button is only activated if the Module, Application, and Parameters steps have been completed.

File • View •	Configuration Steps >> ✓ Module	>> ✓ Application	>>	✓ Parameter	>>	Compile	
Figure 146:Compile Configuration Step							

7.4.1 File Generation

The **Compile** button generates a .zip file containing the project information. These files must be unzipped to place all or some of the <u>component to the root of a USB stick</u>.

7.4.1.1 Zip File Name

The project will ask the user to save the project by giving it a unique name.

Build Script	×
Enter file name:	
1484594291423.zip	
Save	

Figure 147: Build Script File Name

This can be changed if the <u>browser is configured</u> to ask where to save the file and what to save it as.

File name:	1484594291423.zip Enter unique number Choose a location to save the file, then click Save Compressed (zipped) Folder Save Cancel
	Figure 148: Change Build Script File Name and Logation

Figure 148: Change Build Script File Name and Location

7.4.1.2 Example Zip File Contents

This shows an example of the compiled project zip file. The compiled project zip file contains all the configuration (.cfg) files that Composer is creating, based off of the information that the user inputted.

鷆 js	
퉬 YalerTunnel	
📰 config.sql	
💱 perm_settings.cfg	
💱 wifi_settings.cfg	

Figure 149: Example Zip File of Compiled Project


8 Setting up the Module

Once the user has selected applications and enabled parameters, they must download the Composer file to the module.

8.1 Set up Telematics

Set up telematics through the CANect® Composer telematics application settings pane.

8.1.1 Steps

1) Enable the Telematics Application.

Enable Application			
Name	~	Enable	~
CAN Parameters			
Module Parameters			
Telematics			
Figure 150: Enable Telematics	Apr	olication	

- 2) Setting the Telematics properties.
 - a. Set the URL, provided by manufacturer. It is the same as target server. NOTE do not include https:// prefix

Example: canectportal.com/Thingworx/FormLogin/CANect

b. Set the Customer Key. This is a unique string for each customer provided by the Manufacturer. Contact an HED sales rep to acquire a Customer Key.

Set Application Properties			
Drag a column header and drop it here to group by that column			
Property ~	Group ~	Value	
URL		www.hedonline.com	
Customer Key		customer key	
Port		8443	
Figure 151: Set Customer Key			

3) When compiling the project, the telematics settings are inserted into config.sql file.



8.2 Set up WIFI

The user needs to set up two things:

- 1. How the module shows a WiFi host, so that users can connect to it
- 2. How the CANect module connects to other WiFi hotspots to get internet connectivity

8.2.1 Steps to Configure the File through CANect® Composer

1) Enable the <u>WIFI Application</u>.

Enable Application	
Name ~	Enable • ~
CAN Parameters	0
Module Parameters	
Telematics (Not Available)	
Reflector (Paid Service)	8
FTP config	
WIFI	8
Figure 152: Enable WIFI App	olication

2) Configure the <u>APN</u>.

Click these						
Compile Show Passw	vord		fields to type			
Description		Property	avalue		Value	
SSID		APN_SSID				
Password	Click these fields to	APN_PWD			***	
Channel	choose a value from				1	
Max Connections	a drop down menu	APN_MAX_CONNE	CTIONS		5	

Figure 153: Configure APN

3) Click the **Add** button to add the WiFi information for the <u>SSIDs</u> that the CANect module will connect to.

Set Application Properties		
Compile Show Password		
Description	Property	Value
SSID	APN_SSID	
Password	APN_PWD	***
Channel	APN_CHANNEL	1
Max Connections	APN_MAX_CONNECTIONS	5
Add × Delete UP Down		
Priority	SSID	Password
Click to add WIFI information		

Figure 154: Add WIFI information



4) Enter in the SSID and password.

Compile Show Passw	rord		
Description	Property	Value	
SSID	APN_SSID		
Password	APN_PWD	***	
Channel	APN_CHANNEL	1	
Max Connections	APN_MAX SSID name here	S 5	Click the field
Add × Delete Up	Down		password
Priority	SSID	Password	
	SSID1	***	
	All • items per page		1 - 1 of 1 items

Figure 155: WIFI SSID and Password

- 5) Repeat for all the different SSIDs that the CANect® module will need to connect to.
- 6) Use the **Up** and **Down** buttons to set the priority that the CANect® module will use to select what to connect to.

Set Application Properties			
Compile Show Password			
Description	Property	√alue	
SSID	APN_SSID		
Password	APN_PWD	***	
Channel	APN_CHANNEL	1	
Max Connections	APN_MAX_CONNECTIONS	5	
Add × Delete UP Down			
Priority	SSID	Password	
1	SSID1	***	
2	SSID2	***	
3	SSID3	***	
4	SSID4	***	

Figure 156: Up and Down Buttons

7) Generate the configuration file by pressing the **Compile** button on this page; otherwise, it is generated when the entire project is compiled.

Application Properties	Click to generate configuration file	
escription	 Property 	~ Enable
ow HTTPS Access	AUTOSTART_HTTPS	8
ow SSH Access	AUTOSTART_SSH	
ow WEBSocket Access	AUTOSTART_WEBSOCKET	





8.2.2 Steps to get WIFI Configuration on the Module.

1) <u>Configure</u> the wifi_settings.cfg file.

2) Copy the wifi_settings.cfg to the root of a USB stick. These files must be unzipped to place all or some of the component to the root of a USB stick.



- 2)3) Connect USB to module.
- 3)4) Power on the Unit. Most users do this by turning the ignition on.
- 4)5) Unit will automatically grab the file and apply the configuration.



8.3 Set up CANect® <u>Reflector</u> Tunnel

8.3.1 Steps to Configure the File through CANect® Composer

1) Enable the Reflector Application.

Enable Application	
Name ~	Enable • ~
CAN Parameters	0
Module Parameters	
Telematics (Not Available)	0
Reflector (Paid Service)	
FTP config	
Figure 159: Enable Reflector App	olication

2) Enable the different communication methods that are needed, as determined by how the vehicle is wired and how the system is used. The default CANect® View only needs HTTPS enabled.

Set Application Proper	ties	Set Application Properties			
Compile Show Passwo					
Description :	Property :	Enable :			
Allow HTTPS Access	AUTOSTART_HTTPS				
Allow SSH Access	AUTOSTART_SSH				
Allow WEBSocket Access	AUTOSTART_WEBS				
Allow Communication through WIFI	WIFI				
Allow Communication through Ethernet	ETHERNET				
Allow Communication through Cell	CELL				

 Generate the configuration file by pressing the Compile button on this page; otherwise, it is generated when the entire project is compiled. Set Application Properties

Compile Show Password			
Description :	Property :	Enable	
Allow HTTPS Access	AUTOSTART_HTTPS		
Allow SSH Access	AUTOSTART_SSH		
Allow WEBSocket Access	AUTOSTART_WEBSOCKET		
Allow Communication through WIFI	WIFI		
Allow Communication through Ethernet	ETHERNET		
Allow Communication through Cell	CELL		

Figure 161: Generate a Configuration File



Figure 160: Enable Needed Communication Methods

USER MANUAL

8.3.2 Steps to Configure CANect® Reflector

- 1. Modify your <u>YalerTunnel</u> script as detailed <u>below</u> in Section 8.3.3.
- 2. Make a YalerTunnel folder in the root of the USB stick. HED provides the YalerTunnel script.
- 3. Copy the YalerTunnel script to the USB stick YalerTunnel/ folder.
- 4. Plug USB stick into module.
- 5. Module will automatically install file.

8.3.3 To Update Your Root Certificate

- 1. Modify your YalerTunnel script.
 - a. CA_FILE="/mnt/persistent/YalerTunnel/NewCertificateName".
- 2. Make a YalerTunnel folder in the root of the USB stick.
- 3. Copy the YalerTunnel script and certificate to the USB stick YalerTunnel/ folder.
- 4. The script and certificate will be automatically installed.



:

8.4 Set up Logging to FTP

This configures where and how the local data logged files get sent to the FTP site.

8.4.1 Steps to Configure the File through CANect® Composer

1) Enable the FTP Config Application.

Enable/Disable SFTP

Enable Application	
Name	
CAN Parameters	
Module Parameters	
Telematics (Not Available)	
Reflector (Paid Service)	
FTP config	
WIFI	

Figure 162: Enable the FTP Config Application

2) Configure the settings as needed for the application. Users should contact their IT team for help in setting up and connecting to an FTP site.

Set Application Properties				
Compile Show Password				
Description :	Property :	Value		
User name of login	FTP_USER_NAME			
Password of login	FTP_PWD	***		
URL of ftp site	FTP_URL			
Folder to write the log file	FTP SUB DIR			

Figure 163: Configure Needed FTP Settings

Disable

3) To view the password, click on the **Show Password** button.

SFTP_ENABLE

Set Application Properties Compile Show Password -	Click to show password	
Description :	Property :	Value :
User name of login	FTP_USER_NAME	
Password of login	FTP_PWD	testpass
URL of ftp site	FTP_URL	Password is
Folder to write the log file	FTP_SUB_DIR	shown
Enable/Disable SFTP	SFTP_ENABLE	Disable
	Figure 164: Show	Password Button

 Generate the configuration file by pressing the Compile button on this page; otherwise, it is generated when the entire project is compiled. Set Application Properties

eet applied for a reported					
Compile Show Password					
Description :	Property :	Value :			
User name of login	FTP_USER_NAME				
Password of login Click to compile the project WD ***					
URL of ftp site	FTP_URL				
Folder to write the log file	FTP_SUB_DIR				
Enable/Disable SFTP	SFTP_ENABLE	Disable			
Figure 165. C	oporato a Configuratio	n Filo			

8.4.2 Steps to Load the File on the Module

- 1) Configure the perm_settings.cfg file.
- 2) Copy the perm_settings.cfg to the root of a USB stick.
- 3) Connect USB to module.
- 4) Power on the Unit.
- 5) Module will automatically grab the file and apply the configurations.



9 CANect® Modules

9.1 Module LEDs

The module has several LEDs to indicate status of GPS, CELL, WIFI and the module itself. See <u>Appendix A</u> for LEDs available per module.



Figure 166: CL-T07-108-10 LED Configuration.

9.1.1 Module Status LED

Modes of operation:

- Red Solid Initial and entering programming mode.
- Blue Heartbeat Normal Operation but no connection to CANect® Portal.
- Green Heartbeat Programming.
- Green Solid Programming Complete.
- Green Solid with Blue Heartbeat Connected to CANect® Portal.

9.1.2 WIFI LED

Modes of operation:

- Red Solid Indicates error. Also red throughout programming.
- Yellow Solid Connecting to APN.
- Green Solid Connected to APN.
- Off WIFI Disabled.

9.1.3 GPS LED

Modes of operation:

- Red Solid Indicates error and while programming.
- Yellow Solid Connecting to Satellites.
- Solid Green Acquired Satellite Fix.
- Off Disabled.

9.1.4 **CELL LED**

Modes of operation:

- Red Solid Indicates error, no SIM card, and while programming.
- Yellow Solid Connecting to Network.
- Solid Green Connected to Network.
- Off Disabled.



9.2 Module's Antenna Connections

Depending on the module used, several antennas are needed to acquire signals. Antenna types are GPS, CELL, and WIFI. See <u>Appendix B</u> for antennas per module.



Figure 167: CL-T07-108-10 Antenna Configuration:

9.3 SIM Card

Several modules require a SIM card to connect to a cellular network. The SIM card can be accessed on the backside of the module by removing the SIM panel.



Figure 168: SIM Card Panel

9.4 Module Pinout

A Module Pinout is a map of the pins on the module and what to connect to each of the pins. See <u>Appendix C</u> for module pinouts.

10 Closing CANect® Composer

- 1) Close CANect® Composer web page.
- 2) Close the Web Server.



11 Troubleshooting Guide

11.1 Known Problems

11.1.1.1 Downloading Zip files doesn't complete in <u>Ce</u>hrome

Problem: Files don't appear when they are downloaded. Solution: Disable the Phishing and Malware Protection feature in Chrome. For additional information see: <u>https://productforums.google.com/forum/#!category-topic/chrome/report-a-problem-and-get-troubleshooting-help/BXkOMwUOVfg</u>

11.1.1.2 Cannot Access USB Flash Drive

Problem: A noisy environment blocks Portal from accessing a USB flashdrive, so the system cannot update.

Solution: Keep module and USB cable away from noisy environments. Portal will signal when the USB is connected.

11.1.1.3 Unauthorized Update

Problem: Unauthorized user inserts a USB stick, attempting a unauthorized update. This could cause damage to the vehicles.

Solution: Users should change the encryption key. This will invalidate the old software.



12 Glossary

Entry	Definition	
APN	Access Point Name; a connection gateway	
	for sharing information between a mobile	
	network and a computer network	
Baud Rate	The frequency that a single bit is	
	transmitted.	
CAN	Controller Area Network	
CAN Message Specification	The CAN message specification details all	
	the messages that are on the CAN bus. If	
	connected to an engine, users should	
	reference the J1939 specs.	
	For a custom protocol, users need to	
	configure the message specification based	
	on the CAN protocol that they are getting	
	the file off of.	
CANect	HED Telematics Suite Software	
Enumeration	A number list and the text that represents	
	each number in the list.	
FTP	File Transfer Protocol	
Hysteresis	How much a value has to change before it	
	is considered a change by the software	
	algorithm	
I/O	Input/Output	
J1939	One of several standard CAN protocols	
Module	Will need a definition	
Portal	Software in the HED CANect suite	
Reflector	Software in the HED CANect suite	
SFTP	Secure File Transfer Protocol, see also	
	<u>FTP</u> .	
SSID	Service Set Identifier; the name of a	
	wireless router	
Yaler	("Relay" spelled backwards). Secure	
	connection relay service, using either Web,	
	SSH, or VNC. See <u>https://yaler.net/</u> for	
	additional information.	
YalerTunnel	Relay software that connects local device	
	services to the cloud.	



13 Appendix A

13.1 LEDs Available per Module

Module	GPS	WIFI	CELL	Status
CL-T07-108-10	YES	YES	YES	YES
CL-T06-108-10	YES	NO	YES	YES
CL-T05-108-10	YES	YES	NO	YES
CL-T05-107-10	YES	YES	NO	YES



14 Appendix B

14.1 Antenna Connections per Module

Module	GPS	WIFI	CELL
CL-T07-108-10	External	External	External
CL-T06-108-10	External	No	External
CL-T05-108-10	External	External	No
CL-T05-107-10	Internal	Internal	No



15 Appendix C

15.1 CL-T07-108-10 Module Pinout

18-Pin Deutsch Pinout		
Pin	Function	
1	ETHERNET TXN	
2	ETHERNET TXP	
3	ETHERNET RXN	
4	ETHERNET RXP	
5	BATTERY (-)	
6	BATTERY (+)	
7	CAN1-H	
8	CAN1-L	
9	CAN2-H	
10	CAN2-L	
11	KEYSWITCH (+)	
12	INPUT STB/STG/VTD (0-5.66V)	
13	USB POWER	
14	USB DM (D-)	
15	USB DP (D+)	
16	USB ID	
17	USB GROUND	
18	150mA SINKING OUTPUT	

Peripherals		
Item	Peripheral	Status
1	eMMC MEMORY	4GByte
2	DRAM MEMORY	128MByte
3	ACCELEROMETER	POPULATED
4	REAL-TIME CLOCK	POPULATED
5	SECURITY AUTHENTICATION IC	NOT POPULATED
6	STATUS LEDS	POPULATED QTY 4
7	WIFI MODULE	802.11 b/g/n
8	WIFI ANTENNA	EXTERNAL
9	GNSS MODULE	GPS / GLONASS / BEIDOU
10	GNSS ANTENNA	EXTERNAL
11	CELLULAR MODULE	3G WORLDWIDE (LISA)
12	CELLULAR ANTENNA	EXTERNAL
13	USB	USB OTG (HOST AND CLIENT)
14	ETHERNET	POPULATED



15.2 CL-T06-108-10 Module Pinout

18-Pin Deutsch Pinout		
Pin	Function	
1	ETHERNET TXN	
2	ETHERNET TXP	
3	ETHERNET RXN	
4	ETHERNET RXP	
5	BATTERY (-)	
6	BATTERY (+)	
7	CAN1-H	
8	CAN1-L	
9	CAN2-H	
10	CAN2-L	
11	KEYSWITCH (+)	
12	INPUT STB/STG/VTD (0-5.66V)	
13	USB POWER	
14	USB DM (D-)	
15	USB DP (D+)	
16	USB ID	
17	USB GROUND	
18	150mA SINKING OUTPUT	

Peripherals		
ltem	Peripheral	Status
1	eMMC MEMORY	4GByte
2	DRAM MEMORY	128MByte
3	ACCELEROMETER	POPULATED
4	REAL-TIME CLOCK	POPULATED
5	SECURITY AUTHENTICATION IC	NOT POPULATED
6	STATUS LEDS	POPULATED QTY 3
7	WIFI MODULE	NOT POPULATED
8	WIFIANTENNA	NOT POPULATED
9	GNSS MODULE	GPS / GLONASS / BEIDOU
10	GNSS ANTENNA	EXTERNAL
11	CELLULAR MODULE	3G WORLDWIDE (LISA)
12	CELLULAR ANTENNA	EXTERNAL
13	USB	USB OTG (HOST AND CLIENT)
14	ETHERNET	POPULATED



15.3 CL-T05-108-10 Module Pinout

18-Pin Deutsch Pinout		
Pin	Function	
1	ETHERNET TXN	
2	ETHERNET TXP	
3	ETHERNET RXN	
4	ETHERNET RXP	
5	BATTERY (-)	
6	BATTERY (+)	
7	CAN1-H	
8	CAN1-L	
9	CAN2-H	
10	CAN2-L	
11	KEYSWITCH (+)	
12	INPUT STB/STG/VTD (0-5.66V)	
13	USB POWER	
14	USB DM (D-)	
15	USB DP (D+)	
16	USB ID	
17	USB GROUND	
18	150mA SINKING OUTPUT	

Peripherals		
ltem	Peripheral	Status
1	eMMC MEMORY	4GByte
2	DRAM MEMORY	128MByte
3	ACCELEROMETER	POPULATED
4	REAL-TIME CLOCK	POPULATED
5	SECURITY AUTHENTICATION IC	NOT POPULATED
6	STATUS LEDS	POPULATED QTY 3
7	WIFI MODULE	802.11 b/g/n
8	WIFI ANTENNA	EXTERNAL
9	GNSS MODULE	GPS / GLONASS / BEIDOU
10	GNSS ANTENNA	EXTERNAL
11	CELLULAR MODULE	NOT POPULATED
12	CELLULAR ANTENNA	NOT POPULATED
13	USB	USB OTG (HOST AND CLIENT)
14	ETHERNET	POPULATED



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15.4 CL-T05-107-10 Module Pinout

18-Pin Deutsch Pinout				
Pin	Function			
1	ETHERNET TXN			
2	ETHERNET TXP			
3	ETHERNET RXN			
4	ETHERNET RXP			
5	BATTERY (-)			
6	BATTERY (+)			
7	CAN1-H			
8	CAN1-L			
9	CAN2-H			
10	CAN2-L			
11	KEYSWITCH (+)			
12	INPUT STB/STG/VTD (0-5.66V)			
13	USB POWER			
14	USB DM (D-)			
15	USB DP (D+)			
16	USB ID			
17	USB GROUND			
18	150mA SINKING OUTPUT			

Peripherals				
ltem	Peripheral	Status		
1	eMMC MEMORY	4GByte		
2	DRAM MEMORY	128MByte		
3	ACCELEROMETER	POPULATED		
4	REAL-TIME CLOCK	POPULATED		
5	SECURITY AUTHENTICATION IC	NOT POPULATED		
6	STATUS LEDS	POPULATED QTY 3		
7	WIFI MODULE	802.11 b/g/n		
8	WIFI ANTENNA	INTERNAL		
9	GNSS MODULE	GPS / GLONASS / BEIDOU		
10	GNSS ANTENNA	INTERNAL		
11	CELLULAR MODULE	NOT POPULATED		
12	CELLULAR ANTENNA	NOT POPULATED		
13	USB	USB OTG (HOST AND CLIENT)		
14	ETHERNET	POPULATED		



16 Appendix D

16.1 Errata

ID	Known Issue	Workaround
10181	Some of the CAN errors reported by the CANect module get updated so quickly that they are very hard to see on View or Telematics Portal	Use local data logging or look at other parameters to get the status of the CAN bus
10380	Setting the perm_settings.cfg file from usb stick does not update the setting in the module.	Power Cycle is needed.
10612	When programming with just a perm_settings.cfg file the Top left status light is set to off, and never restored.	Power Cycle is needed.
10665	Connecting to cell can be delayed. Depending on cell strength.	Use a combination of the status LED and GSM LED to check connection status.
10708	If connected to the telematics portal from the Ethernet port and the Ethernet connection is lost the portal will still show the module as connected.	Power Cycle is needed.



17 Revision History

Revision	Date	Description	
A01	11/15/2016	Original Release	
A02	02 12/9/2016 Added Set Parameter and Request Update. Moved revisions t		
		the last page.	
A03	1/16/2017	Updated the WIFI configuration to notify the user that multiple	
		SSIDs can be setup. Added unit information to GPS parameters.	
		Main compile button changes.	
A04	1-17-2017	Added in Set Parameter and Request Update	
A05	4-6-2017	Updated Transmit Rate, Added Ethernet Application, Updated	
		the Hardware application to include I/O, Accelerometer, and tilt	
		parameters.	
B01	08/10/2017	SIM ID, ESN and MAC address in the hardware parameter list	
		is always selected. Choice of which communication protocol to	
		enable for Reflector. Datalogger file size is now selectable.	
		Log file can be transferred though FTP or SFTP based on user	
		selection. Added auto selection of WIFI channel option.	

