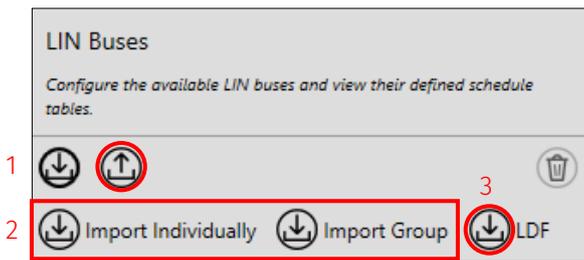


LIN overview

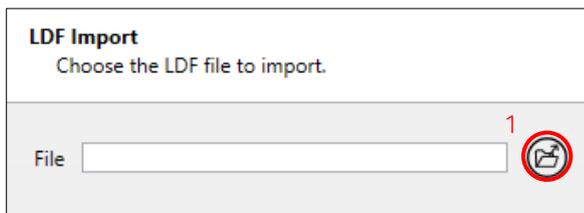
All Cosworth LIN-capable devices have LIN functionality to allow you to fully configure LIN buses and device behaviour through Toolset. The **Configurable LIN** node is compatible with LIN 2.0 and higher versions which require an *.ldf* file which matches this standard.

Configure a LIN bus

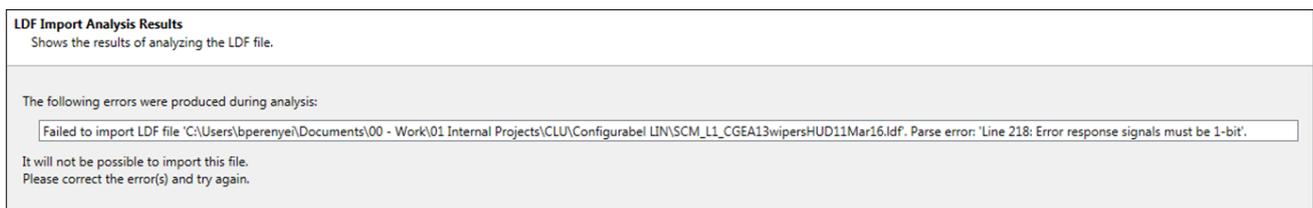
To configure a LIN bus, click import (1), and then select a Toolset Library File (*.tlf*) (2) or LIN Description File (*.ldf*) (3). You can use using the import and export tools (1 & 4) to import and export LIN buses between existing setups as a *.tlf* file.



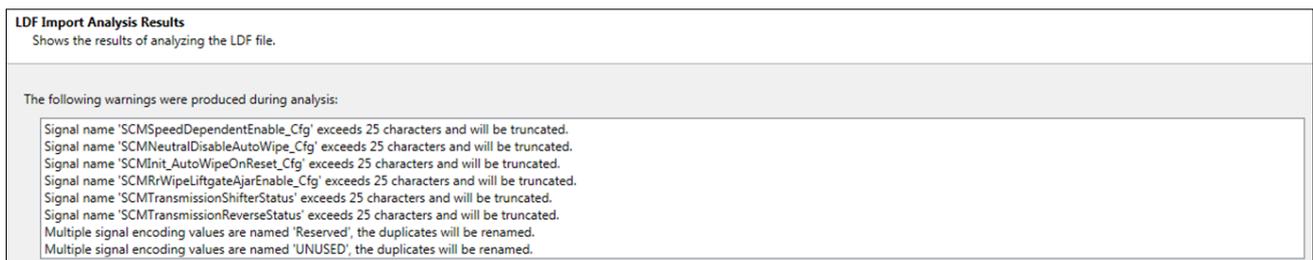
If the LDF import tool is enabled, you can browse to the file from any location on the PC (1).



When you select the *.ldf* or *.tlf* file, Toolset checks the file to make sure it adheres to the LIN standard. Critical errors are displayed with their line position within the LDF. You must correct the errors to be able to import the LDF.



The LDF analysis also shows any warnings. Unlike errors, warnings do not stop the file from being imported into the setup, but can result in inconsistencies with the channel.



Click **Next** to display the **LDF Import Component** selection list. You can select/deselect schedule tables, frames, and channels here.

LDF Import Component Selection
Select the channels that should be imported.

Channels:

Name	Start Bit	Length (bits)	Publisher	Subscribers
<input checked="" type="checkbox"/> SCM_L31_M1				
<input checked="" type="checkbox"/> SCM_L1_P00	Id: 0	Length (bytes): 7	Published By: SCM	
<input checked="" type="checkbox"/> SCMfWiperSwitch_Status	0	4	SCM	SFWM, RSM
<input type="checkbox"/> SCMfWasher_Rqst	4	1	SCM	SFWM
<input type="checkbox"/> SCMLowBeamOn_Stat	5	1	SCM	SFWM
<input type="checkbox"/> SCMfWasherMist_Ev	6	1	SCM	SFWM
<input type="checkbox"/> SCMRrWiperSwitch_Status	8	2	SCM	SFWM
<input type="checkbox"/> SCMLiftgateAjar_Status	10	1	SCM	SFWM
<input type="checkbox"/> SCMHdipWashOnTime_Cfg	11	3	SCM	SFWM
<input type="checkbox"/> SCMHdipWashOffTime_Cfg	14	2	SCM	SFWM
<input type="checkbox"/> SCMCourtesyWipeEnable_Cfg	16	1	SCM	SFWM
<input type="checkbox"/> SCMSpeedDependentEnable_Cfg	17	1	SCM	SFWM
<input type="checkbox"/> SCMRainSensingEnable_Cfg	18	1	SCM	SFWM
<input type="checkbox"/> SCMNeutralDisableAutoWipe_Cfg	19	1	SCM	RSM
<input type="checkbox"/> SCMInit_AutoWipeOnReset_Cfg	20	1	SCM	SFWM
<input type="checkbox"/> SCMInit_OfftoAutoWipe_Cfg	21	1	SCM	SFWM
<input type="checkbox"/> SCMRrWipeLiftgateAjarEnable_Cfg	22	1	SCM	SFWM

start typing to filter

1 Channel(s) Selected

Cancel < Back Next > Finish

You can also set the unit mapping of each channel if required.

LDF Import Unit Mapping
Configure the quantities and units for the selected channels.

Channels:

Name	Start Bit	Quantity	Unit	Mapping Type
SCM_L31_M1				
SCM_L1_P00	Id: 0	Length (bytes): 7	Published By: SCM	
SCMfWiperSwitch_Status	0	scalar value	None	

start typing to filter

Show standard units Show mapped units

Unit Mapping
Select how the unit string for the channel maps to a quantity and unit.

Unit string: scalar value

Quantity: user type

Gain/Offset: 1.00000 0.00000

Apply to selected channel

Apply to all channels with this unit string

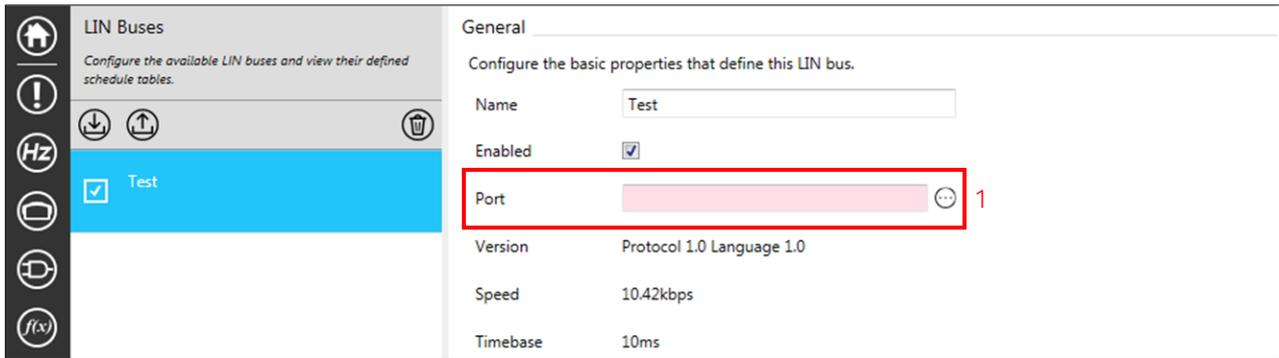
Defaults apply to all channels with the same unit string. Clearing resets them to user type units.

Set default

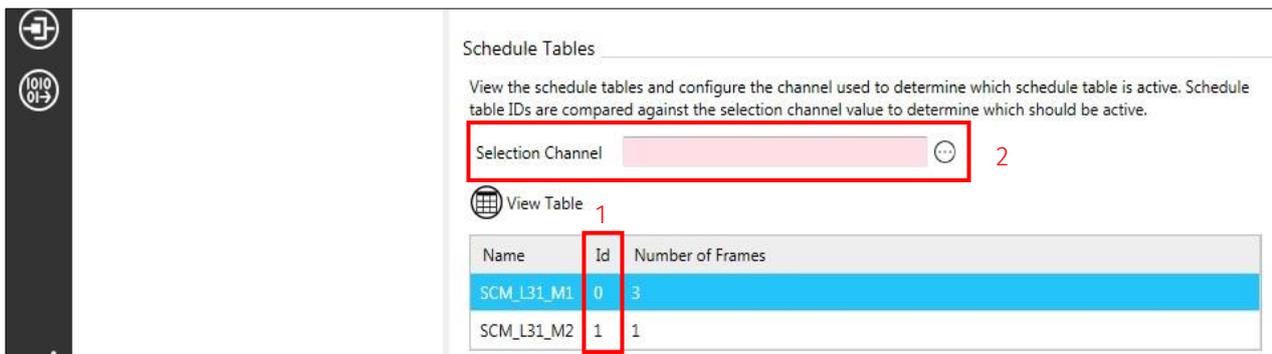
Clear default

Cancel < Back Next > Finish

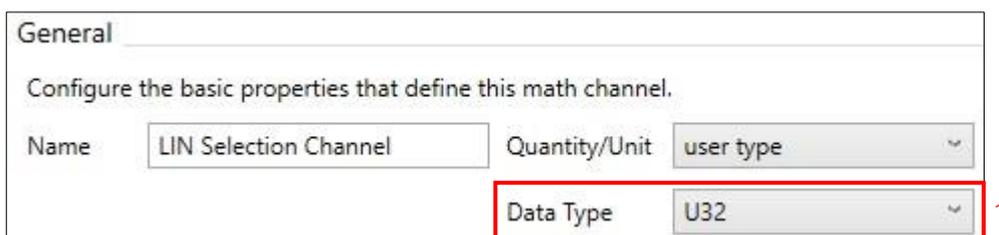
Once imported, the LIN schedule tables are displayed on the LIN node and you can select the required LIN port (1).



Imported schedule tables are assigned an ID number (1) by Toolset, starting from zero. The **Selection Channel** (2) controls which schedule table is sent out on the LIN bus.



The selection channel should be configured as a maths channel within the setup (See [Maths Channels](#)). The maths channel intended to control the selection must be assigned as a U32 **Data Type** (1).



You can view each schedule table to show each frame contained within it.

Test Schedule Tables
View the properties of the selected schedule table and its defined frames. The schedule table ID is compared against the selection channel value to determine if the table is active.

General
Configure the basic properties that define this schedule table.

Name: SCM_L31_M1
ID: 0

Frames
View the frames that make up this schedule table.

View Frame

Name	Id	Length (bytes)	Delay (ms)	Rate (Hz)	Direction	Checksum Method	Number of Channels
SCM_L1_P00	0	7	20	20	Encode	Classic	1
RSM_L1_P00	24	2	10	20	Decode	Classic	2
RSM_L1_P01	25	2	10	10	Decode	Classic	1

You can also view each frame to show the individual channels present within it.

Test SCM_L31_M1 Frames
View the properties of the selected frame and its defined channels.

General
View the basic properties that define this frame.

Name: SCM_L1_P00
ID: 0
Length (bytes): 7
Rate: 20 Hz
Data Direction: Encode
Checksum Method: Classic

Channels
View the channels that make up this frame.

Name	Type	Start Bit	Length (bits)	Quantity	Unit	Scaled Data Type	G...	Offset
SCMPtWiperSwitch_Status	Calibrated	0	4	user type	scalar value	F32	1	0

Channels that are encoded within the LIN bus also need to be defined within the setup as maths channels.