Consat Vehicle System

Vehicle Maintenance Menu Description

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1 The Maintenance/Service Menu

In this chapter, we will describe all available tests and information views in the Maintenance menu.

• The Maintenance menu is password protected. Make sure you have the menu password handy when you are to use the menu functions.

1.1 System Installation Tests

• Note: The vehicle system installation procedure, described in the installation guides, includes several system tests in the Maintenance menu (the tests are dependent on the hardware installed). See your installation instructions for information about which system tests are a mandatory part of your (/the particular vehicle) system installation.

There should be an installation protocol for the vehicle verifying that it has passed all relevant installation tests.

• Note: The system tests available to you will depend on the configuration of the vehicle system you are working on. The description below includes all possible tests, some of which may not be available in "your" system.

1.2 Maintenance > Unit Information

In this view you will find basic system information: Vehicle and computer-related ID numbers, software and resource versions etc.

The view includes function buttons for triggering the uploading of diagnostic files to the CM system, version checks and manual rebooting of the computer.

Both the software/resources in use and the status and versions of inactive software/resources (that are downloaded in the background and set to replace the current versions in use) are displayed.

Maintenance Back	Unit Information	17261053 tchga
Unit Information	Vehicle ID:	3588-299992
Initial Provisioning	Software P/N: Customer Id:	999999999799 N/A
System Test	Software Version: i4m_vehicle_agent-MX4-linux-26-22.	9.0p44 @ 2022-08-12 21:24
TFT Provisioning	Resource Version: resources © 2022-08-16 00:16 Inactive Software Version:	
Network	i4m_vehicle_agent-MX4-linux-26-22.9.0p43 @ 2022-08-12 17 Inactive Software Status:	9.0p43 @ 2022-08-12 17:50
Modem Trace	ок Inactive Resource Version: resources © 2022-08-15 00:15	Check Version
Gprs Settings	Inactive Resource Status: ok	Reboot

Information

Hardware ID:	Unique vehicle computer serial number (see the label on the vehicle computer)
Vehicle ID:	Vehicle number
Software P/N:	Software product number
Customer ID:	Unique customer ID (only used in some systems).
Software Version:	Name/version number of the software now in use in the vehicle computer.
Resource Version:	Name/version number of the resources now in use in the vehicle computer.

Inactive Software Version	Name/version number of the software that is in line to replace the software now in use in the vehicle computer.
Inactive Software Status	The status of the software downloading in the background to replace the software now in use: OK, Pending (downloaded and ready to replace the current software)/ Downloading / Download Failed (aborted/failed download).
Inactive Resource Version	Name/version number of the resource(s) that are in line to replace the software now in use in the vehicle computer.
Inactive Resource Status	OK, Pending See Inactive software status above.

Function Buttons

Send Diagnostic	Upload diagnostics files to the CM (Configuration Manager) system for troubleshooting by Consat. These files are accessed through the vehicle tab in the CM web interface, see CM User Manual.
Check Version	Manual (software) version check. When the button is touched, the vehicle computer will immediately check if its current software matches the software/resources assigned to it in the Configuration Manager – if the CM system has newer versions assigned to the vehicle, those will be downloaded. (Such checks are performed periodically anyway but this button allows you to check whenever you like, for instance immediately after you have made changes in the vehicle configuration.)
Reboot	Button for manually rebooting the vehicle computer.

1.3 Maintenance > Initial Provisioning

Initial provisioning is a function for connecting a freshly installed vehicle (system) to its Configuration Manager system. For more information about this function, see the installation guide for the type of vehicle computer(AIC4/MX4) your system uses.



Maintenance Back	Initial Provis	ioning
Unit Information 🛛 📥	Operator:	TCB QA
Initial Provisioning		
System Test	Hardware Id: Vehicle Id:	17261053.tcbqa 99992
TFT Provisioning		OK
Network	Log:	
Modem Trace		
Gprs Settings		Redo IP Exit

1.4 Maintenance > System Test

Under "System Test" you will find many system functionality tests. The tests included in this list will reflect the functionality of the system in the vehicle.

The list both works as a test menu for selecting the individual test you want to run, and as a log presentation showing the result of the latest test (OK/ERROR).

- Touch a test header in the list to open the corresponding test view.
- The individual tests are described on the following pages.



System Test > Audio Loop Int.

This test is an alternative to the Audio Int. Test (see the following section).

The test repeatedly plays a test sound/recorded phrase in a loop, until you confirm or abort the test.

Confirm that you hear the sound OK in the dialogue. The test result will be presented in the Log window.

System Test Back	Audio Loop Int.
Audio Loop Int.	Test interior audio volume in a loop
Audio ext.	Log: Test result: OK
Audio int.	Test result: OK Test result: OK Test result: OK
СЗ	Test result: OK Test result: OK Test result: OK
Central connection	Test result: OK Test result: OK
Door	Test result: OK Test result: OK Test result: ERROR
External Sign connection	
Fare-box	Not in use Run
GPS 💌	

Button	Description
Run	Start the test.
Not in use	If the vehicle does not have a connected internal PA system you can touch "Not in use" to include "Not in use" in the log (mainly for installation log purposes).

System Test > Audio ext.

Test of exterior speakers. A test sound is played (once) through the exterior speakers. You confirm the function manually in the dialogue presented.

- 1. Touch the *Run button*.
- 2. In the dialogue presented, touch *Yes* or *No* depending on if you hear the sound OK played through the **exterior** speakers or not. Yes, leads to a positive test result, and No to a negative result (ERROR).





Button	Description
Run	Start the test.
Not in use	If the vehicle does not have a connected external PA system you can touch "Not in use" to include "Not in use" in the log. (Mainly for installation log purposes.)

System Test > Audio Int.

To test the interior audio functionality, run the Audio Int. Test. It works just like the exterior test (see the previous section).

Run the test and confirm that you hear the test sound through the interior speakers. See the previous section.

Note: There is also an alternative test that plays the test sound repeatedly in a loop, see the previous section.





Button	Description
Run	Start the test.
Not in use	If the vehicle does not have an internal PA system you can touch "Not in use" to include "Not in use" in the log. (Mainly for installation log purposes.)

Systemtest > CCTV [R8C/Vivotek...]

This test verifies the connection and communication between the vehicle system and a connected CCTV system.

Note: The test does not cover active CCTV faults – these are indicated in the Active Faults view (and in the R8P, etc. Trace Section) in the Maintenance menu.

- 1. Press *Run* to start the test.
- 2. The test dialogue log shows how the test proceeds and, if OK, includes information about the hardware serial, the software version and the number of configured cameras.
- 3. If the system result is negative (Error), check the connections and verify that the CCTV system is running. Run the test again.

System Test Back	CCTV R8C	
Audio ext.	Get CCTV status	
Audio int.	Log: Last run: 2017-04-07 12:38:29	
СЗ	Got status Got status. serial: 00:26:4E:00:19:3E firmware: 1.7.21	
CCTV R8C	connected cameras: 2 Test result: OK£Starting test at: 2017-04-07 12:38:29	
Can2		
Central connection	Got status. serial: 00:26/4E:00:19:3E firms: roi: 1.7.21	
Depot Sync Test	connected cameras: 2 Test result: OK	
Door		
GPS 💌	Not in use Run	



System Test > Equipment Power Control

This test checks that the Consat system can control the power of all relevant onboard equipment, and that way verifies that the cabling has been done correctly.

The test switches off the [aux] power and checks communication with the various units. The results are presented in the log.

- 1. Press *Run* to start the test.
- 2. The log shows how the test proceeds with verification of individual equipment power (identified by IP and in some cases description).
- 3. If the system result is negative (Error), check that the equipment is connected to the Consat controlled AUX power relay. Run the test again.

System Test Back	Equipment power control
APC Test	Test control of power to equipment
Android Connection	Log: Last run: 2022-10-14 10:36:20 Check all is reachable first
Audio ext.	Testing 192.168.3.38 (MADT) Connection to host 192.168.3.38: OK Testing 192.168.3.32 (Int. 192.168.3.32 Passenger Display)
Audio int.	Connection to host 192.168.3.32: OK Allowing power to equipment again
CCTV Vivotek	Check none is reachable Ensuring power to equipment stays off Testing 192.168.3.38 (MADT)
Equipment power control	Connection to host 192,168.3.38: OK Testing 192,168.3.32 (Int. 192,168.3.32 Passenger Display) Connection to host 192,168,3.32: OK
GPS	Allowing power to equipment again Test result: OK
С3	Nat in ura Pun
Can2	

System Test > C3

Run this test to verify that the vehicle computer registers C3 pulses, through the C3 input. (These pulses are converted to odometer information used to assist the GPS in positioning the vehicle along the driven route.)

A log field shows the latest tests/results.

- 1. Drive the vehicle (or spin the correct wheel) to generate the C3 pulse.
- 2. Touch the *Run* button to start the test.
- 3. A dialogue opens with information about received C3 pulses.
- 4. If C3 pulses have been detected **within 10 seconds** the test **result will be OK**, if not the log will show ERROR.

If the test is negative, first check the vehicle computer C3 connection (see corresponding schematics for your system), then the C3 pulse generator and cables.

System Test Back	C3
APC Test	Test incoming pulses on C3 counter.
Audio ext.	Log: Last run: 2021-06-22 05:37:31
Audio int.	Starting test at: 2021-06-21 15:37:30 Waiting for input on C3 counter.
GPS	
С3	
Can1	
Can2	
Central connection	
Depot Sync 🗨	Not in use Run

	Back C3	
APC Test	C3	counter.
Audio ext.	Status: RUNNING	2021-06-22 05:37:31
Audio int.		
GPS	Log: 711 Starting test at: 2022-08-16 17:21:11	
С3	waiting for input on C3 counter.	
Can1		
Can2	Connel	
Central connecti	Cancel	
Depot Sync		Run

System Test > Can1/2

Run this test to verify that the vehicle computer can receive data over the Can1/Can2 bus (BEA/J1939...)

1. Touch the *Run* button to start the test.

System Test Back	Can1
Audio Loop Int.	BEA test
Audio ext.	Log: Last run: Not Run
Audio int.	
Can1	
Can2	
Central connection	
Depot Sync Test	
Door	Not in use Run
External Sign connection 💌	

2. A dialogue will show with a log field.

System Test	Back Can1	
Audio Loop Int.	Can1 - Test: ERROR	
Audio ext.		Not Run
Audio int.		
Can1	Log: Starting test at: 2016-10-11 06:04:58 Test to gradue CDD OD	
Can2	TESCIESUIC: ERROR	
Central connecti		
Depot Sync Test	ок	
Door		Run
External Sign cor	nection	

3. If the vehicle computer detects Can traffic, the test result will be **OK**, if not, **ERROR** will show/be logged. If so, check the Can bus connection and run the test again.

System Test > Central Connection

If you need to test the communication with the CM system and vehicle gateway without doing an Initial Provisioning, run the Central Connection test.

1. Touch the *Run* button to start the test.

System Test Back	Central connection
Audio Loop Int.	Connection test to important hosts.
Audio ext.	Log: Connection to host 192.168.170.17: OK
Audio int.	Test result: OK Testing 192.168.170.17(Depot server) Connection to host 192.168.170.17: OK
C3	Test result: OK Testing 192.168.170.17(Depot server)
Central connection	Test result: OK Testing 192.168.170.17(Depat server)
Door	Connection to host 192.168.170.17: OK Test result: OK Testing 192.168.170.17(Denot server)
External Sign connection	Connection to host 192.168.170.17: OK Test result: OK
Fare-box	Not in use Run
GPS 🗨	

2. When you run the test the vehicle system will try to contact the CM system and the vehicle gateway. If **either of these systems** for some reason cannot be reached, the test result will be negative (ERROR).

Systemtest	Tillbaka Central connection	
Audio ext.	Central connection - Test:	nt hosts.
Audio int.		Not Run
Central connecti		
Depot Sync Test	Logg: Starting test at: 2016-09-12 13:56:05 Tooting 192 168 140 146(Donot carver)	
GPS	Connection to host 192.168.140.145: OK Test result: OK	
Signs		
	ок	
		Kör

3. Touch the **OK** button to close the dialogue.

Button	Description
Run	Start testing the communication between the vehicle system and the Configuration manager system (and gateway).
Not in use	In special cases where the vehicle does not have/cannot communicate with the central system but the test is to be included in the log anyway, you can touch the button Not in use" to include "Not in use" in the log. (Mainly for installation log purposes.".

System Test > Depot Sync

This test sends an NVS, a "Node version request", to the CM system. An NVS check if the vehicle software/resources are up to date (i.e. if they match the software/resources assigned to the particular vehicle in the CM system).

If the vehicle receives a correct answer from the CM system, the test result will be "OK". If not, it will be "ERROR".

Many things can result in a negative test result, and not all are "faults": The vehicle system can be in the process of updating its software, and the vehicle may not (yet?) be included in the CM system (no initial provisioning has been performed), or some kind of communication problem may have affected the test.

The log will include information about (possible) problems leading to the negative test result.

1. Touch the *Run* button to start the test.



2. Touch the **OK** button to close the dialogue.



System Test > Door

This test lets you check that the door open signal is detected correctly by the vehicle system (a common problem as door switches are prone to fail).

1. Touch the *Run* button to start the test. Open and close the doors **within two minutes**. If the door open signal is detected the test result will be OK.

System Test Back		Door
Audio Loop Int.		Test of the door signal connection.
Audio ext.		Log:
Audio int.		
С3		
Central connection		
Door		
External Sign connection		
Fare-box		Not in use Run
GPS	▼	

2. If you want to cancel the test manually, touch Cancel in the dialogue.

System Test	Back Door	
Can2	Door	nection.
Central connecti	Status: RUNNING	2021-06-22 05:37:49
Depot Sync		
Door	Log: Starting test at: 2022-08-16 17:24:25	
Int. Passenger D	Waiting for valid signal: anyDoorOpen Waiting for any door to be opened	
Next Stop Buttor		
Panic Button	Capcel	
Sign Frame Test	Curcer	Rup
Signs		

System Test > Int. Passenger Display

Run this test to check the connection to/communication with onboard passenger displays. If contact is established correctly the test result will be OK. The display sign IP addresses will show in the log.

1. Touch the *Run* button to start the test.



2. Touch the **Cancel** button in the dialogue to abort the test/close the dialogue.

System Test	Back	Int. Passenger	Display	
Can2	Int. P	assenger Displ	lay	passenger
Central connecti	9	Status: RUNNING		2021-06-22 05:38:42
Depot Sync			515	ay)
Door	Log: Starting test at: 2	2022-08-16 17:27:48	-7 j V -	ilay)
Int. Passenger D	Testing 192.168.3 Display] Connection to hos	.32(Int. 192.168.3.32 Passenger it 192.168.3.32: OK		ay) -09-25 19:51:26
Next Stop Buttor	Testing 192.168.3 Display]	.34(int. 192.168.3.34 Passenger		olay)£Starting test at:
Panic Button		Cancel		.,,,
Sign Frame Test				Run
Signs				

System Test > Fare Box

Run this test to check the connection to/communication with the vehicle fare box. If contact is established correctly the test result will be OK.

1. Touch the *Run* button to start the test.



System Test > GPS

Run this test to check the connection to the GPS unit. (Depending on installation the GPS can be either directly connected to the vehicle computer or communicate with the vehicle computer through the vehicle network, through the fare box.) If GPS data is received correctly the test result will be OK.

1. Touch the *Run* button to start the test.

System Test Back	GPS
GPS 🔺	Test of the GPS connection.
J1708	Log: Waiting for position data
Keypad	Position data received. Waiting for position data
Modem	Position data received. Test result: OK Waiting for position data
Panic Button	Position data received. Test result: OK
SD Card	Position data received. Test result: OK
Sign Test Code	Waiting for position data Position data received. Test result: OK
Signs	
USB	Not in use Run

System Test > Hanover Test Mode

Run this test to check connections to/communication with Hannover Ethernet signs. A test sequence will be displayed on the signs. Verify that it is displayed correctly in the dialogue.

System Test Back	HANOVER Test Mode
APC Test	Test connection to Hanover Ethernet signs
Audio ext.	Log: Lost run: 2022-12-07 12:29:27
Audio int.	Starting test at: 2022-12-07 12:28:47 Running /home/i/m/shin/systemtest/hannver_system_test_mode_sh
CDRI Verify	
GPS	
HANOVER Test Mode	
С3	
Can2	
Central connection	Not in use Run

System Test	Back	HANOVER Test Mode	
APC Test	HANG	OVER Test Mode	r Ethernet signs
Audio ext.	:	Status: RUNNING	2022-12-07 12:29:27
Audio int.			tem test mode.sh
CDRI Verify	Log: Starting test at: : Running	2023-01-18 10:51:07	
GPS	/home/i4m/sbin/ sh	'systemtest/hanover_system_test_mode.	
HANOVER Test N			
C3		Cancel	
Can2			Run
Central connection	1		



System Test > J1708

Run this test to check the J1708 bus connection. If data can be read from the bus, the test result will be OK. If the test is negative (ERROR), check connections and try again.

1. Touch the *Run* button to start the test.



System Test	Back J1708	
Depot Sync Test	J1708 - Test: ERROR	on
Door		Not Run
External Sign cor		
Fare-box	Log:	
GPS	Test result: ERROR	
J1708		
Next stop buttor		
Sign Test Code	ÖK	Dum
Signs		Kun

System Test > Keypad

Run this test to check the connection to a driver interface keypad (used in some legacy installations instead of a touch display). If the keypad is detected the test result will be OK. Note that individual keypad button functionality is not tested.

1. Touch the *Run* button to start the test.

System Test Back	Keypad
Audio Loop Int.	Keypad input signal detection Log: Starting test at: 2016-09-29 03:29:10 Waiting for input from keypad No input from keypad detected, timeout,
C3 Central connection	Test result: ERROR
Door External Sign connection	
Fare-box GPS	Not in use Run

System Test	Back Keypad
Audio Loop Int.	Keypad - Test: ERROR
Audio ext.	
Audio int.	
СЗ	Log: ///
Central connecti	Waiting for input from keypad No input from keypad detected, timeout. Text result: FBROR
Door	
External Sign cor	
Fare-box	ОК
GPS	Run

System Test > Modem

This test checks the modem connections. If you have run the more extensive Modem Trace test (page 42) you do not need to use this test. If a connection to the modem can be detected the test result will be OK.

1. Touch the *Run* button to start the test.

System Test	Back	Modem
GPS		Test physical modem connection
J1708		Log:
Keypad		
Modem		
Panic Button		
SD Card		
Sign Test Code		
Signs		Not in use Run
USB		

Systemtest	Tillbaka Modem	
Audio ext.	Modem - Test: ERROR	
Audio int.		Not Run
C3		
Can2	Logg: 710 Starting test at: 2016-09-15 11:46:56	
Central connecti	No successful AT probe to modem since startup: FAILED Test result: ERROR	
Depot Sync Test		
Door		
External Sign cor		
GPRS	Kör	

System Test > Mobileye

This test checks the CAN connection to the Mobileye system.

(Note: An additional "Can3/Mobileye" connection test may also be included in the system test menu.)

ystem Test > Next Stop Button

Run this test to check the "Stop at next stop" button connection. Run the test and press a button **within one minute** – if the button pressing is detected the test result will be OK.

If you get a negative result you can check again with another button, before you proceed with checking the connections to the vehicle computer (see installation documentation/schematics for the vehicle).

- Remember to clear the next stop button signal before running the test.
 - 1. Touch the *Run* button to start the test. A test dialogue will be displayed.

System Test Back	Next stop button
Depot Sync Test	Test of the next stop button signal connection.
Door	Log: Last run: 2016-10-11 06:14:21
External Sign connection	Starting test at: 2016-06-29 06:30:40 Clear next stop button signal and restart test. Test result: ERROREStarting test at: 2016-06-29 08:07:48
Fare-box	Clear next stop button signal and restart test. Test result: ERROR
GPS	
J1708	
Next stop button	
Sign Test Code	
Signs	Not in use Run

2. Press a Next Stop Button in the vehicle and check the Log in the dialogue for the response.



3. Touch the **Cancel** button in the dialogue to end the test manually.



System Test > Main Switch Equipment Power

Run this test to verify the correct powering of equipment during ignition off.

- Note: To perform the test you will have to manually turn the ignition off (and then on again).
 - 1. Press *Run* to start the test.
 - 2. **Read and follow the instructions in the log window** (telling you to turn off the ignition). The test will check the connections to installed equipment in sequence displaying the results.
 - 3. If the system result is negative (Error), check that the equipment is connected correctly. Run the test again.



System Test > Panic Button

Run this test to check the "Driver Assistance Request" button connection. Run the test and press the button (usually concealed in the driver compartment) within one minute – if the button pressing is detected the test result will be OK.

If you get a negative result, proceed with checking the connection to the vehicle computer (see installation documentation/schematics for the vehicle).

1. Touch the *Run* button to start the test.

System Test	Back	Panic Button
GPS		Test of the panic button connection.
J1708		Log:
Keypad		
Modem		
Panic Button		
SD Card		
Sign Test Code		
Signs		Not in use Pun
USB		Not in use Kuin

2. Touch the **Cancel** button in the dialogue to end the test manually.

Systemtest	Tillbaka	Panic Button			
Door	Panic	: Button - Tes	t:	nnection.	
External Sign cor					Not Run
GPRS			122		
GPS	Logg: Starting test at: 2	016-09-15 11:54:27	212		
Modem	Waiting for buttor	n press			
Next stop buttor					
Panic Button					
SD Card		Avbryt			
Signs				Kör	

System Test > SD Card

Check the SD card reader in an MX4 vehicle computer by running the SD Card test. Verify that no card is in the reader slot, run the test (Touch the Run button) and follow the instructions on the display.

The test includes inserting/detecting the card, reading and writing from/to the card and removing the card. If all steps check out OK, the test will be positive.

System Test	Back	SD Card
GPS		Test insert/remove and read/write of SD card device
J1708		Log:
Keypad		
Modem		
Panic Button	_	
SD Card		
Sign Test Code		
Signs	- E	Not in uro Pun
USB		

System Test > Sign Test Code

This test checks interaction with an external sign controller. When the test is run a code is sent to the controller to trigger displaying of content (pre-defined and stored in the controller).

You check the result and confirm the function manually in a dialogue, answering a "Did it work?" question by touching either yes or no.

System Test Back	Sign Test Code
Audio Loop Int.	Display text
Audio ext.	Log: Test result: 0K
Audio int.	Test result: 0K Test result: 0K Test result: 0K
C3	Test result: OK Test result: OK
Central connection	Test result: OK Test result: OK Test result: OK
Door	Test result: OK Test result: OK
External Sign connection	
Fare-box	
GPS 💌	Not in use Run

System Test > Signs

Run the Signs test to check all connected interior and exterior signs. When you run the test the system will display the configured address of each sign (on that sign), compare it with the configuration in the CM web interface (see separate manual) and check that the correct addresses are visible on each sign. If the addresses do not match you must change the configuration in the CM for the sign control to work correctly. **Confirm that the addresses are displayed ok by touching OK in the dialogue, see below.**

1. Touch the *Run* button to start the test.

	bl.	
System Test Back	Signs	
Depot Sync Test	Test of interior/exterior signs	
Door	Log: Last run: N	lot Run
External Sign connection		
Fare-box		
GPS		
J1708		
Next stop button		
Sign Test Code		
Signs	Not in use Run	L
System Test Back	Signs	
Audio Loop Int. Signs -	- Test: RUNNING	
Audio ext.	N	ot Run
Audio int.		
Can1 Log: Starting test at: 20	016-10-11 06:17:10	
Can2 Mobitec / RS485 Mitron / RS485 Hanover / RS485		

Cancel

2. Confirm correctly displayed addresses by touching the Yes button. If addresses are not displayed correctly, touch the No button, check the sign configuration, make needed changes, update the vehicle and run the test again.

Systemtest	Tillbaka Signs
Door	ins
External Sign cor	Not Run
GPRS	Sign addresses visible
GPS	
Modem	
Next stop buttor	
Panic Button	
SD Card	Ja
Signs	Kor

• Example, Log:

Log:	Last run:	2021-07-13 15:52:33	
Hanover / MQTT not testable, outputter not available.			
Bustec / Ethernet			
Bustec / Ethernet no	t testable, outputte	er not available.	
Test result: OK£Start	ing test at: 2021-07	-13 15:52:23	
Mobitec / RS485			
Mitron / RS485			
Hanover / RS485			
Mobitec NSI / RS485			
Mobitec / UDP			
Hanover / MQTT			
Hanover / MQTT not 1	estable, outputter:	not available.	
Bustec / Ethernet			
Bustec / Ethernet no	t testable, outputte	er not available.	
Test result: OK			

• Note that all Viatex signs have a specific common address. When these signs are used/configured the number "15" is always displayed on the signs when the sign test is run.

Button	Description
Run	Start the test, addresses are displayed on the signs. Confirm function/configuration by touching OK in the dialogue presented.

System Test > Sign Frame Test

Run the Signs test to check the configuration of all connected interior and exterior signs. When you run the test the system will display a two-pixel frame along the edges of all signs. If the frames are not displayed correctly you must change the configuration in the CM. **Confirm that the frames are displayed ok by touching OK in the dialogue, see below.**

1. Touch the *Run* button to start the test. Note: The test details are described in the Log field.

System Test Back	Sign Frame Test	
APC Test	Ouputs a 2 pixel frame on all signs	
Audio ext.	Log: Last run: 2017-12-18 18:50:06 Will output a 2 pixel frame on all signs as they are configured	
Audio int.	Make sure the frame is at the extent of all signs There should be no pixels outside the frame, and the frame	
C3	Test done. Test result: OK	
Can1	Starting test at: 2017-12-18 18:49:56	
Can2	Will output a 2 pixel frame on all signs as they are configured Make sure the frame is at the extent of all signs There should be no pixels outside the frame, and the frame chould be 2 wide	
Central connection	Test done. Test result: OK	
Depot Sync Test		
Door 🗸 🔻	Not in use Run	

2. **Confirm correctly displayed frames by touching the Yes button.** If the frames are not displayed correctly, touch the No button, check the sign configuration, make needed changes, update the vehicle and run the test again.

System Test	Back Sign Frame Test	
APC Test		ıll signs
Audio ext.		2017-12-18 18:50:06 they are configured
Audio int.	Do you see a 2 pixel frame	ll signs me, and the frame
С3	on all signs with no pixel	
Can1	outside the borders?	they are configured
Can2		ll signs me, and the frame
Central connecti		
Depot Sync Test	Tes	Dum
Door		Kun

System Test > Heater Trace

The Heater Trace test verifies that the connected heaters can be controlled by the system.

xxx

System Test > USB

Run the USB test to check the USB extension cable/connector and the USB write/read (to driver memory stick) functionality. Have a USB stick ready, touch the Run button and follow the instructions on the display.

System Test Back	USB
Audio Loop Int.	Test insert/remove and read/write of USB device
Audio ext.	Log:
Audio int.	
С3	
Central connection	
Door	
External Sign connection	
Fare-box	Net is use Due
GPS 💌	Rot in use Run

1.5 Maintenance > TFT Provisioning

This function sets up the Consat Display systems in the vehicle. All onboard displays with consat software connected to the onboard ethernet will be displayed in the TFT Provisioning view. You can select placement, configure orientation, etc in a sub-menu. A status indicator shows the display software status and the MAC address of all recognized displays are listed for identification.

• In the TFT Provisioning view, touch the Position menu button to open the specific display menu.



Factory Reset	Perform a factory reset on the display system.
Options	Sub-menus for selecting placement in the vehicle and orientation. (Displays can be mounted in portrait/landscape orientation and even upside down for easier cable routing.)
Log:	Display System log. Indicating problems, etc.

• Touch the **Apply** button for any changes to take effect.

1.6 Maintenance > Network

The Network view shows the latest logged status and MAC/IP addresses of the vehicle computer network ports.

To configure the network connection (of MX4) to allow direct connection to a computer or other equipment demanding a static IP you can switch between static IP and DHCP.

Touch Factory Wifi to test the factory wifi connection

Use the Static setting when connecting to a computer and the Dhcp setting when connecting to a Dhcp router.

• Note that the button shows "->Static", as in "*switch to static mode*" when in Dhcp mode, and "->Dhcp", as in "*switch to Dhcp mode*" when in Static mode.



Log:

Network Interfaces:	Timestamp
Update reason:	Event/timer triggering the update.

eth0/1	Network connectors 0 and 1, Followed by MAC address, then IP number.	
Mobile:	Information about the mobile network	

1.7 Maintenance > Modem Trace

Here you will find (all available) information about the connected modem.

Note! Depending on the configuration, a button for manually detecting a connected modem is included in the view – if you have installed and connected a new modem, you will have to touch this button to detect the modem.

Maintenance Back	Modem Trace	AT NOK	Detect
AIC Information 📃 📥	Cell ID		
Network Modem Trace	SCID IMSI IP		
Initial Provisioning	AT Port NMEA Port PPP Port		
System Test	Modem Port Last autodetect	0,0	
Sign Pattern	Type IMEI	S: 4,	
Mobitec Test	Log:		

Maintenance Back	Modem Trace
Unit Information	State: () ATNOK Call: Unknown Signal:) csq-0/0% Type: Unknown:0/Unknown IP: () Net:
System Test	IMEI:
TFT Provisioning	SCID: () IMSI: Modem:
Network	Ports: N/A
Modem Trace	Detect: Auto detection off Cell:
Gprs Settings	Log: Updated @ 17:47:45

Information

State:	AT OK or AT NOK – basic modem status	
Cell ID:	If available: The GSM cell the modem is currently connected to.	
APN:	The APN modem is set to use for the internet connection.	
SCID:	Sim Card ID (Sim card serial No.)	

IMSI:	"Service Subscriber Key"	
IP:	IP number assigned for mobile data.	
AT Port:	AT command serial port (maybe virtual).	
NMEA Port:	NMEA (GPS) serial port (maybe virtual).	
PPP Port:	Point to Point Protocol serial port (maybe virtual).	
Modem Port:	Modem serial port.	
Last autodetect:	Information about the latest autodetect tries (and results).	
Туре	Modem type and profile numerical code (if available)	
IMEI	GSM/UMTS modem serial number.	

1.8 Maintenance > Gprs Settings

In this view, you can view and set APN (gateway), including authentication username and password. This will enable you (temporarily) to correct settings that will cause the vehicle computer to lose contact with the central system. This is a potential problem if the vehicle computer has been installed from the wrong flash card.

- Note: Your project manager or Consat Support can provide the correct APN settings.
- Note: If you enter the wrong settings the vehicle computer will (of course) not be able to establish contact with the central system.
- Note: At the next synchronization the settings you enter in this view will be overwritten by the particular vehicle configuration in the configuration manager. If that configuration is not correct, the connection will again be lost. Check the vehicle configuration in the Configuration Manager, before making the needed changes in this view to establish a connection with the central system.

Maintenance Back	Gprs Settings [Configured]
Unit Information	APN telstra.m2m
Initial Provisioning	Depot IP 23.101.209.233
Contains Taint	Password
System lest	PIN
TFT Provisioning	Remove PIN ON OFF
Network	Auth ON OFF
Modem Trace	Log: Trace started.
Gprs Settings	Cancel Apply

Touch Apply to make the entered APN settings take effect. Check the connection by running the central connection test in the System Test menu, see chapter Fel! Hittar inte referenskälla., page Fel! Bokmärket är inte definierat.

Menus

	The current APN address. Touch to open the Edit APN view, see
AFN	below. Use the soft keyboard to enter the correct APN address
	Save with the Apply button. Click Cancel to close the view
	without saving.



Auth	Activate/deactivate APN authentication (with the above-set username and password) by touching the corresponding button, highlighted to show the setting.		
Log:	Note: The log field is not used in the current software version.		

1.9 Maintenance > Android Connection

The Android Connection view is used for checking the connection/communication between the vehicle computer and a Consat Android pad.

1.10 Maintenance > Sign Pattern

The Sign pattern test checks the configuration of connected signs by displaying pre-set patterns.

Use the currently configured protocol (default) or see if a manually selected protocol works better (to check if the current configuration is wrong).

Several test patterns are available to suit different sign types. (Systems with RGB signs have additional patterns available).

- 1. Select protocol and pattern (see menu descriptions below)
- 2. Touch **Apply** to display selected patterns using the selected protocol/the protocol defined in the current configuration.



Signs (protocols) supported

- Mobitec (RS485, RS485BB, UDP, NSI/RS485)
- Mitron (RS485)
- Hanover (RS485)
- Apricot (IBIS). IBIS adapter must be used.
- Gorba (IBIS). IBIS adapter must be used.

Menu Descriptions

Protocol	Touch the menu button to open the menu. Touch to select a protocol in the list (according to the configuration is the default
	choice).

Pattern	To test the sign if the sign resolution configuration is OK, open the menu and select a test pattern:				
	Fill	The whole sign is filled to check that all pixels are lit/flipped on.			
	Frame	This pattern is used for checking that the text will fit the sign if th sign resolution is unknown. If the frame does not fit the sign, increase/decrease the configured width/height in the CM accordingly.			
	Blank	No pixels lit/flipped. Switch between this pattern and the fill patt to verify that all pixels work OK.			

1.11 Maintenance > Led Sign Self Test

Use this to check Mobitec LED signs. When you run the test the signs will show their resolution, software version, address and, depending on the sign type, hardware version.

(Note: The address of Mobitec signs will also be displayed when you run the Signs test, see the previous section.)



1. Touch the *Run* button to start the test.

4. To end the test, touch the **OK** button in the dialogue displayed.

1.12 Maintenance > Volume Test

- Several parameters are used for controlling the interior/exterior sound level and volume control min/max settings (The lower/upper limits of the volume control) in a particular vehicle. This test is used for checking/tuning these settings for each vehicle/pa system.
- Note that this is only a test you have to note the correct settings and enter these in the CM web interface to configure all vehicles of the same kind and with the same pa-system.

Term Descriptions

Min is the lower limit of the volume adjustment interval. The driver cannot turn down the volume more than this. This parameter is set as a percentage of the total adjustment interval (0% being silent and 100% being the maximum vehicle computer output level).

Max is the upper limit of the volume adjustment interval. The driver cannot turn up the volume more than this. This parameter is set as a percentage of the total adjustment interval (0% being silent and 100% being the maximum vehicle computer output level).

Normal is the default/"normal" volume setting for the vehicle. The volume control returns to this setting at configured times (when re-booting etc.). Note that the normal volume is set as a percentage in the interval between the Min (0%) and Max (100%) settings (described above).

Reduction controls how much the volume is to be lowered during scheduled volume reduction, a function for lowering the volume during certain times at night etc. The volume reduction is set in per cent.

• Note: To quickly check the audio functionality you can use the Volume Settings menu (Accessed through the function menu, see driver's manual).).



Menus

• Note: The test sound is always played according to the "normal minus reduction" setting, defined within the min-max interval.

Speaker	Select interior/exterior/driver speakers		
Min	Set minimum level (The driver's minimum volume setting): Adjust the setting using the up/down arrow buttons in the dialogue and confirm by touching the Apply button.		
Μαχ	Set maximum level (The driver's maximum volume setting): Adjust the setting using the up/down arrow buttons in the dialogue and confirm by touching the Apply button.		
Normal	Set normal/default level. Adjust setting using the up/down arrow buttons in the dialogue and confirm by touching the Apply button.		
Reduction	Set reduction level. The amount the volume is to be reduced during the scheduled volume reduction. Adjust setting using the up/down arrow buttons in the dialogue and confirm by touching the Apply button.		

Set interior/exterior/driver audio level range

- 1. Select interior/exterior/driver speakers in the top menu to test the corresponding levels.
- 2. Start with "000" as Min-setting and "100" as the maximum volume setting. Set reduction to "000".
- 3. Open the normal volume menu and set it to "000".
- 4. Touch "Apply" in the test menu to listen there should be no sound.
- 5. Open the Min-menu and increase the setting to "20" or maybe "30". Touch the Apply button in the test menu again to listen to the Min setting.
- 6. Adjust and repeat until the Min setting sounds OK. The drivers will not be able to turn down the volume more than this. (Remember that most drivers tend to turn down the interior volume as much as possible, the announcements must be intelligible even if the bus is full of chatting passengers.)
- 7. Now set the Normal volume setting to "100" to listen to the Max setting. The sound level will probably be quite high.
- 8. If the volume is too high, try reducing the setting Max setting to maybe 80-90% and listen again. The drivers will not be able to turn up more than this.
- 9. Note the Min and Max settings for later configuration of all vehicles of the same type/ with the same pa system.

Test Normal Volume Setting

- Note: As the normal volume setting is defined in relation to the Min and Max settings, these settings should be tested OK before you try out the normal/default volume setting.
 - 1. Select interior/exterior/driver speakers in the top menu to test the corresponding levels.
 - 2. Make sure the Reduction is set to "000".
 - 3. Set Normal to "050" or maybe "060" and touch "Apply" to listen to the normal/default level.
 - 4. Adjust as needed consider normal background noise levels.
 - 5. **Note the Normal setting** for later configuration of all vehicles of the same type/ with the same pa system.

Test Volume Reduction

- Note: As the volume reduction is applied to a volume setting between the Min and Max levels, these should be OK before you try out different reduction settings.
- Note: The test sound is always played at the set "normal level" (inside the Min-Max interval), minus the set reduction. Test a suitable reduction by trying different reduction settings at various Normal settings (to simulate different volume settings).
- As the drivers tend to turn down the internal volume as much as possible, make a habit of beginning testing the reduction at a "Normal" setting of "000" simulating the reduction effect on a volume level turned down.
 - 1. Select interior/exterior/driver speakers in the top menu to test the corresponding levels.
 - 2. Set Normal to "000" to simulate fully turning down the volume.
 - 3. Set Reduction to "010" or maybe "015".
 - 4. Touch Apply to listen.
 - 5. Adjust and listen again if more reduction is needed or if the reduction makes the played sound inaudible.
 - 6. You may want to adjust the Min-level to allow for a substantial reduction while still keeping the announcements audible but remember that this will affect the Normal setting (as this is defined inside the span between the Min and Max values).
 - 7. Now try the decided reduction at a "normal" normal setting your selected default value.
 - 8. **Note the Reduction setting** for later configuration of all vehicles of the same type/ with the same pa system.

1.13 Maintenance > Screen Test

The Screen test is used for checking the display functionality (mainly for dead pixels) and the touch functionality. The view contains two buttons, one to start each test, see below.

Maintenance Back	Screen Test
Mobitec Test	
Volume Test	
Screen Test	Pixel
	Touch
Digital Input	
Digital Output	
GPS Trace	
Odometer Trace 💌	

Pixel

Touch the **Pixel** button to check that the driver display has no dead pixels. The display will show one colour at a time. Touch the display to switch to the next colour in the test sequence.

Touch the ${\bf Back}$ button to return to the Screen test menu.



Touch

Touch the **Touch button** to check the display touch navigation precision and functionality. Different parts of the touch display can be tested for response: You perform a drag and drop-test where you touch the display at a position of your choice, drag and release. A blue arrow symbol will indicate the starting point and a green arrow symbol will indicate the endpoint. Try different parts of the display to check the whole touch area.

Touch the **Back** button to return to the Screen test menu.

L				
-				
_		1		
		Ð		
-			Dack	-

1.14 Maintenance > Digital Input

In this view, you can monitor the current states of the discrete digital inputs of the vehicle computer. Scroll the input list using the arrow scroll buttons to the right.

- See the corresponding schematics to map signals to the inputs. Maintenance Digital Input Back **Digital Input** digitalInput1 OFF ON Digital Output OFF ON digitalInput2 GPS Trace digitalInput3 OFF ON **Odometer Trace** digitalInput4 ON OFF Factory Reset digitalInput5 ON OFF System Status ignition OFF ON Passenger Counter digitalSerialInput1 OFF ON
- Note: If signals need to be inverted (the door signal for instance) this is performed in the vehicle configuration, see CM User Manual.

1.15 Maintenance > Digital Output

In this view, you can view the current state of all digital outputs, and manually change the state for each output to check the effects on connected equipment etc. (Like relays used for switching between interior and exterior speakers etc.)

- See the corresponding schematics to map signals to the outputs.
- Scroll the list using the arrow buttons to the right and manually change the state for each output as needed, using the Off/On buttons.



1.16 Maintenance > GPS Trace

This view displays a log showing the current GPS settings, received messages etc.

If no GPS messages are received, this indicates that the GPS unit/connection does not work OK and may need to be checked.

Touch the **Clear Log** button to clear the displayed log below.



Button	Description
Clear log	Clears the (local) GPS log.

1.17 Maintenance > Odometer Trace

The Odometer Trace view presents incoming C3pulses, the odometer factor and the resulting speed/distance.

The odometer uses the C3 pulse input and an "odometer factor" to continually calculate the driven distance. The odometer factor is also continuously calibrated using the GPS after a default vehicle type-specific odometer factor has been set in the initial provisioning process. **This means GPS problems will also affect the odometer precision.**

• To check the C3 signal, run the C3 System check, see page Fel! Bokmärket är inte definierat.

Maintenance B	ack	Odometer Trace	
Mobitec Test		C3 Factor	0 56.0
Volume Test		Dist since door open	0
Screen Test		Odometer	0
Digital Input		m/s	km/h
Digital Output		0.0	0.0
GPS Trace		Trip Last dist between doors	0
Odometer Trace			Reset

Unit	Description
C3	C3 pulse count
Factor	The current odometer factor (mm/pulse) is used for calculating speed/distance from the C3 input pulses.
Odometer	Driven distance since reboot.
Speed	Vehicle speed (m/s and km/h)
Dist since door open	Distance driven since last door opening (m)
Trip	Trip meter (m)
Last dist between doors	Driven distance between the last two door openings. (m)

1.18 Maintenance > SMS

Use the SMS view to send an SMS to a/your(?) telephone – to check the SIM card, and at the same time verify/get the vehicle telephone number.

Two buttons open a telephone number entry keyboard popup and a Test Message edit keyboard, respectively. You only need to enter the phone number. By default, the text message content is "Test Message", only change it if you want to send a specific message.

- Open the top Number keyboard view and enter your telephone number. Press Apply.
- Keep the "test message" text, or open the Message keyboard view and edit the text if needed. Press Apply to return to the SMS view.
- Send the SMS by pressing "Send SMS", the log will indicate that the message has been sent (if the SIM card etc. is OK).
- The vehicle telephone number will show in the (cell) phone receiving the SMS.



Cancel

Apply

1.19 Maintenance > Mobileye

Xxxx

Maintenance Back	Mobileye
Digital Output 📃	
GPS Trace	
Odometer Trace	
SMS	
Mobileye	
Panic Alarm	
Elsy	

1.20 Maintenance > Panic Alarm

Use the Panic Alarm view to check a connected panic alarm button, without triggering an actual alarm.

The view includes two buttons: Change Mode and Clear Log, and a log section.

- The **Change Mode** button toggles between **normal mode** (a triggered alarm will set the system to alarm mode with repeated alarm updates to the central system) and **test mode** (a triggered alarm is presented in the log window but will not result in actual alarm messages).
- **Press the physical alarm button** *when in test mode* and check the log to verify the correct operation.
- You can verify the function by touching the **Trigger Alarm** button.
- Use the **Clear log** button to clear the log view below.
- Note: The panic alarm automatically returns to normal mode when the view is closed.



1.21 Maintenance > PTC Trace

This view is used to verify the PTC functionality, i.e. the microphone and driver speaker functionality. By touching the Audio Loopback ON button you connect the mic input to the speaker. Talk into the mic and verify the sound from the speaker.

(Note that setting the volume too high can result in feedback howl as the sound from the speaker is picked up by the mic.)

Maintenance Back		
Digital Output 📃 📥		
GPS Trace		
Odometer Trace		
SMS		Turn the audio
Panic Alarm		(audio from mic channeled through
PTC Trace	Audio Loopback:	the speaker).
Passenger Counter		Set speaker volume

Set speaker volum (menu available when audio loopback off)

1.22 Maintenance > Elsy

This view shows all current Elsy signal states (system-dependent list). Use it to check/verify the signals.

Maintenance Back	Elsy
Digital Output 📃	anyDoorOpen
GPS Trace	nextStopIndication
Odometer Trace	warningLight
SMS	BoolFunction_1
	BoolFunction_2
Passenger Counter	BoolFunction_3
Change Depot	BoolFunction_4
Elsy 🔽	

1.23 Maintenance > Passenger Counter

The Passenger Counter (APC) view displays data from the vehicle APC system enabling simple testing of both the communication with the passenger counter system and verification of basic functionality, sensors at all doors etc.

The view includes data from the latest passenger counter report (the last time the system counted passengers when the vehicle stopped at a stop point).

Three buttons let you manually start the count, retrieve data from the passenger counter system, and clear the counter, allowing testing of the system with the vehicle stationary and not servicing a journey.



Checking the Passenger Counter

The same simple procedure simultaneously tests the communication with the passenger counter system and the counting function itself.

1. Touch the **Get** button to retrieve the latest passenger counter data from the APC system and verify the communication with the system. If the communication is OK, "Status: OK" will show below (see image).

"Source": is the name of the connected passenger counter system.

Passenger Counter Back StopId: Start Count Digital Input In bus: Ignition: Digital Output Journey: Clea Source: **GPS** Trace Status: Check Jpdate Odometer Trace ln: 0, Out: 0 In: 0. Out: 0

If no contact can be established, "Status: COM ERROR" will show. Check APC system power and connections and retry.



Maintenance Back	Passenger Cour	nter		
Disital Innut		Start Count	StopId:	0
Digital Input		Get	In bus: Ignition:	0
Digital Output		Clear	Journey:	?
GPS Trace		Clear	Source:	manualSimulator
or or nuce		Check Update	Status:	UK
Odometer Trace		1 In: 0, Out: 0	Into	
Signals		2 In: 0, Out: 0		
		4		
Change Depot		5		
Passenger Counter		7		
Odometer Trace Signals Change Depot Passenger Counter		# Current Last 1 hn:0,0ut:0 2 hn:0,0ut:0 3 4 5 6 7	Info	

2. When the communication is verified OK, touch the **Clear** button to reset the counter.

- **3.** Open the doors and enter/exit the vehicle through all doors (remember the number of times you are entering/exiting).
- Touch the Get button again to retrieve the latest count (that will be presented below).
 Verify that the system has counted correctly.

#	Current	Last	Info
1	ln: 0, Out: 0		
2	ln: 0, Out: 0		
3			
4			
5			
Ľ			

Note: When changing/updating hardware, etc. you can force an immediate APC system software version check/update by touching the Check Update button.

(The APC system version check is of course performed periodically but the manually triggered check will save time and allow you to quickly proceed with the Passenger Counter tests after installing new hardware.)



1.24 Maintenance > System Status

The System Status view presents a simplified view of the current status of a selected number of vehicle systems. See below for information about how the status is detected in each case.

Maintenance Back	System Status	
Digital Input	VBEA Multiplex status	ОК
	State of ABS system	ок
Digital Output	State of Engine	ок
GPS Trace	Transmission status	ок
Odometer Trace	Active DTC Codes	ок
Factory Reset	Multiplex modules status	ок
System Status		_
Passenger Counter 🚽		

Item	Description
VBEA Multiplex status	xxx.
State of ABS system	xxx
State of Engine	xxx
Transmission status	xxx
Active DTC codes	xxx
Multiplex modules status	xxx

1.25 Maintenance > R8C/Vivotek Trace Section

This view lets you test **CCTV** system functionality (if the CCTV system reports any errors). You can also manually request stills/snapshots from all configured cameras.



Header	Description
Cameras	The number of configured cameras
Status	OK/Error (see the active faults view for fault codes and descriptions).
Snapshot	The button to the left opens a menu for camera selection (touch the camera number in the menu to select – note that "0" is camera number 1 and so on). The right button takes a snapshot from the camera. The image is displayed below.
Logg:	This section is not used in the current version of the system.