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Date – 02.05.2024
IR..CLW.20240502.1086

To,
Dy. CEE (D&D)
Chittaranjan Locomotive Works
Chittaranjan
West Bengal - 713331

Subject: Approval of software package 1.4.1.2 for ATIL make propulsion system

Reference: software release notes for version 1.4.1.2 package

Dear Sir,

With reference to above subject matter and cited reference, we would like to bring in your kind notice that, as a part of continous product improvement and resolution of reliability issues of propulsion system raised by various zonal railways, we have released new baseline software package for alstom make IGBT based propulsion system for 3-phase locomotives, detailed change history is available in software release notes mentioned as reference here.

We seek your prompt support to approve this software package for complete fleet of locos working with ATIL make IGBT based propulsion system, this will allow us to increase the reliability of system on mainline operations.

Please let us know for any clarification required on subjected topic.

Assuring you of our best possible services always.

Yours Sincerely

Nileshkumar Kshatriya
PI Support Manager

Copy to – PED/PS&EMU/RDSO – for kind information
PED/RS/Railway Board – for kind information

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Date – 08.05.2024
IR..CLW.20240508.1089

To,
Dy. CEE (D&D)
Chittaranjan Locomotive Works
Chittaranjan
West Bengal - 713331

Subject: Details of changes, incorporated in software package 1.4.1.2

Reference: 1. software release notes for version 1.4.1.2 package
2. Our office letter no. IR..CLW.20240502.1086 dated 02.05.2024

Dear Sir,

With reference to above subject matter and cited reference, we would like to share the detailed software logic, modified in software package version 1.4.1.2. Please find below detailed explanation of changes as requested.

Problem Statement 1: Isolation of SR during energy saving mode activation in software package 1.4.1.1

Reason: In Software 6.0.4.13, in CCUO software below changes has been implemented to handle isolation of Traction converter due to the low coolant pressure condition.

1. When (VCB Command is given and VCB is closed for more than 20 sec) **AND** (Coolant pressure is Low for more than 20 sec) **and** (FLG Node is greater than or equal to 570) **and (**less than 596) then isolate the converter.
2. When FLG Node is 596 and Command to Pulse traction converter (line /motor) is raised and VCB is closed for more than 20 sec and coolant pressure is low for more than 16 sec , then CCUO shall open VCB with the fault message of coolant pressure below limit.

   When the above action of opening VCB with disturbance of Coolant pressure low happens thrice within 30 mins of first fault then CCUO Shall isolate Traction Converter.

In first requirement we didn't add energy saving mode interlock. So, when ESM is activated on that time BUR has ramp down the coolant pump and CCU get Coolant pressure low feedback, so as per first requirement SR will be isolated when energy saving mode is activated.

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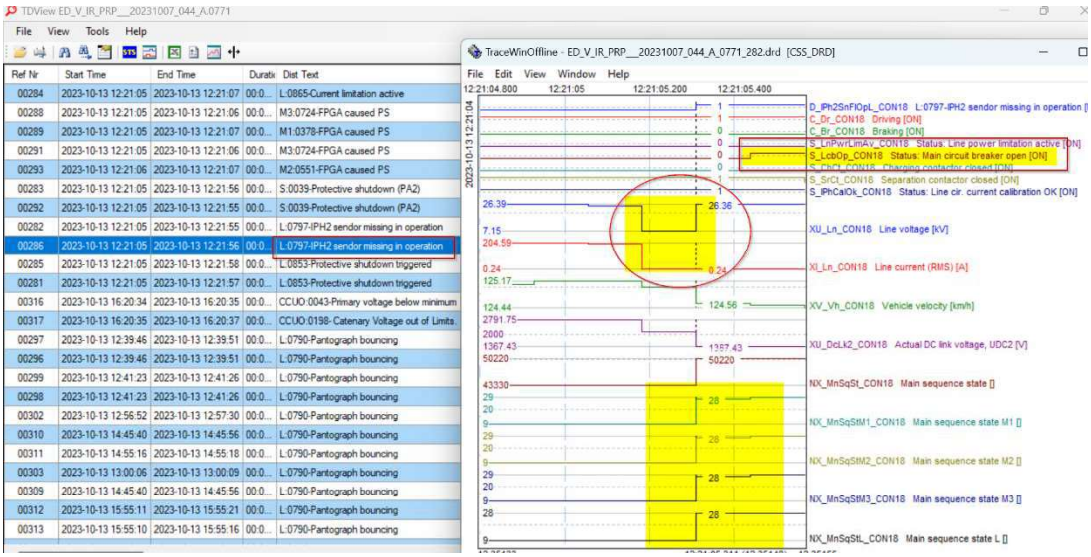
Solution: Changes made in software i.e. Added ESM activated and deactivated interlock in coolant pressure logic (In 1st and 2nd requirement we added ESM activated and deactivated interlock)

Problem Statement 2: When line voltage drop for short time then " loss of IPH sensor message" being generated during traction and as a result of protective shutdown was initiated. This cause to open LCB and "Disturbacne in converter massage" pop up message is triggerred on DDU



RCA: While troubleshooting we found issue could be related to supervision timings. We conclude that if line interruption is there, is only can cause for Protective blocking not protective shutdown , to improve this we are change Parameter related to line supervision from 500ms to 45ms which can give use correct response as per system requirements.

Solution : When the line voltage is suddenly dropped below Minimum Voltage 16.5 KV for more than 45ms , then protective blocking is initiated for line and motor converter and this will nullify the chances of with Disturbance in converter pop up message

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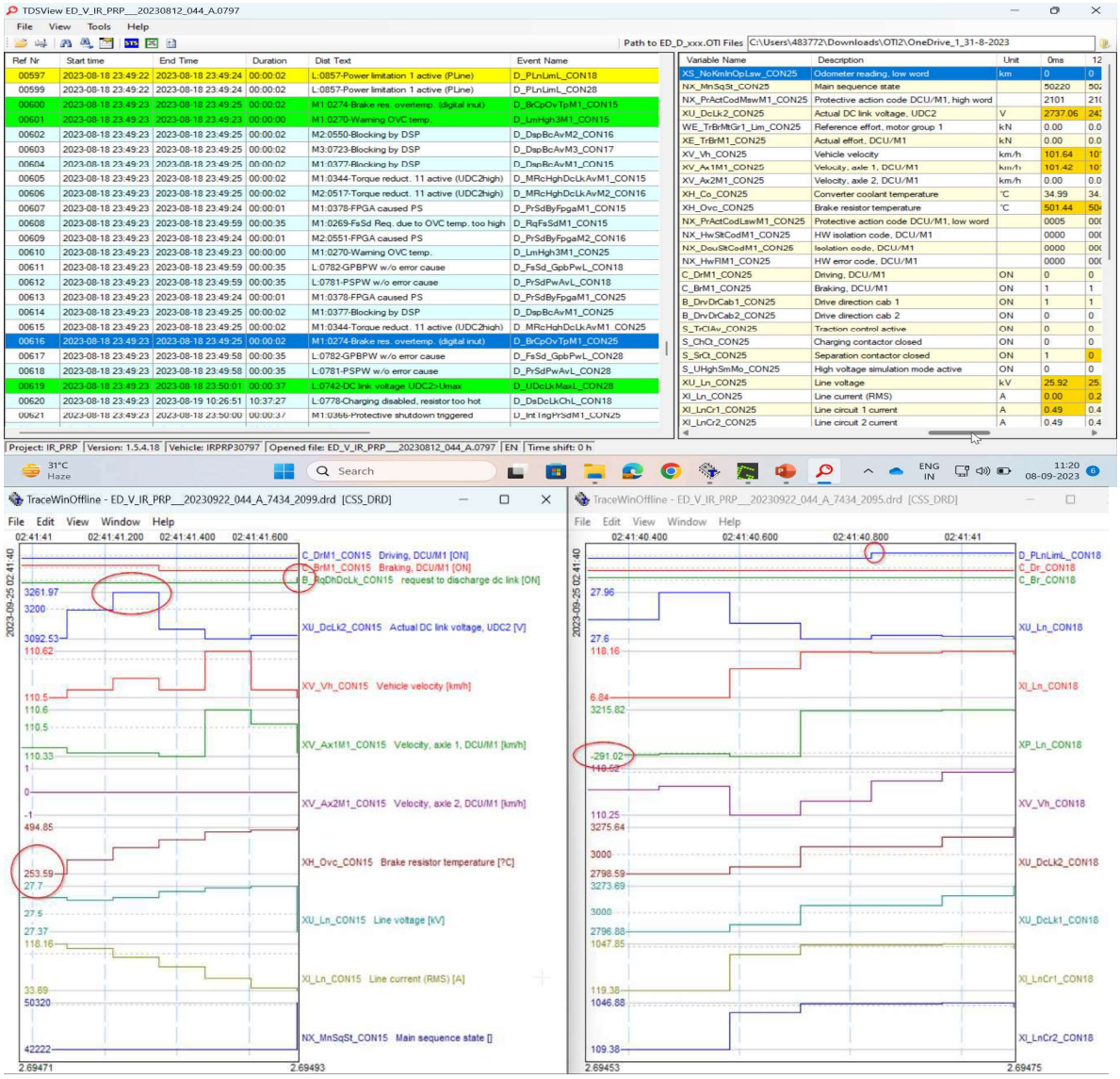
Problem Statement 3 : Traction converter isolation due to OVC temperature too high.DC link is getting higher is some special case , if it is higher then 3200Vdc Br-Rs chopper will fire and it can increase Brake resister temperature.



RCA: in several case study for OVP related issues most common thing we found is "It will happen only when Power limitation is active and Train is in braking mode". During this time- DC link Voltage is getting higher than nominal operating condition and when it crosses 3200, OVP fires and Energy gets dissipated on OVP resistor.

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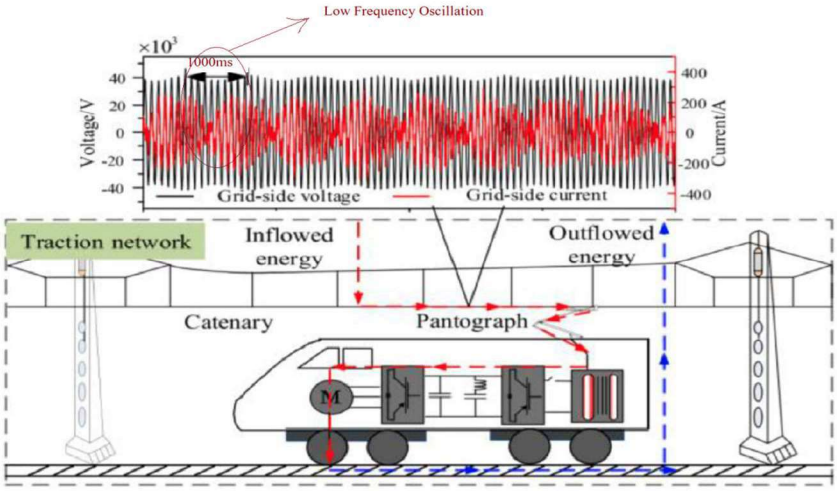
Solution: Stabilization of DC link voltate through tuning of 4QC and implementation of power oscillation damping logic (POD)

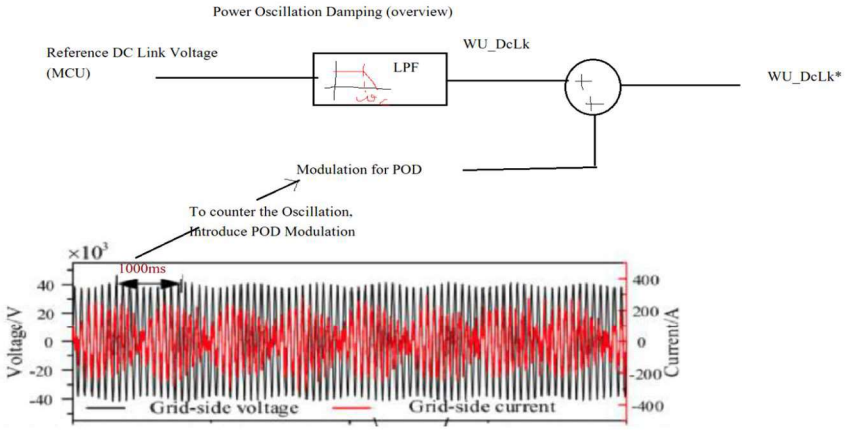
OVC related improvement: POD functionality

Problem Statement: While RCA for OVC related issue ,we also found one more improvement will be introduce for DC link reference.



RCA: Low frequency oscillation on Line voltage could be effect the DC link voltage fluctuation .

Solution: Introduce POD function in addition to LPF to eliminate effect on DC link reference.



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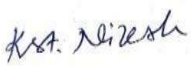
Assuring you of our best possible services always.

Yours Sincerely



Nileshkumar Kshatriya
PI Support Manager

Responsible division:	Responsible unit:	Document type:	Confidentiality status:	
RSC	PPC	Release Candidate Instructions	Public	
Prepared: 2024-05-02 M Vijay Anand		Title: **Software Package Release Notes for Propulsion in WAG9/9H, WAP7, WAP5 Locomotives**	Document state: Released	ALSTOM
Checked: 2024-05-02 K Manoj Kumar			**3EYP600299-2089**	
Approved: 2024-05-02 S Sourav		File name: 3EYP600299-2089__Gen_IR_PRPset_Software Package Release Notes_1.4.1.2	Revision: _H	Language: en / Pages: 1/25
		Saved:	Sequence index: 1	

IR Propulsion Set

Software Package Release Notes

WAP7

WAP5

WAG9/WAG9H

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Table of Contents

Table of Tables

1 INTRODUCTION

1.1 Abstract

This document contains the release notes information for all software delivered by Alstom for Propulsion Systems installed in WAG9/9H, WAP5, WAP7 locomotives with or without Hotel Load Converter Locomotives. Describes version information of Software binary part of released versions. Presently released software package version **1.4.1.2(424W01AT).**

1.2 Abbreviations and Definitions

Abbreviation	Description
BL	Bootloader
BUR	Auxiliary Converter
Cfg	Configuration
CCUO	Central Computing Unit – Operation Section
CLW	Chittaranjan Locomotive Works
DCU	Drive control unit
FW	Firmware
IR	Indian Railways
MAPP	Address plug programming tool for TCMS & converter control equipment
MCE	Micas-S2 Control Electronics, retained control equipment for the IR GP140 locomotive
MOBAD	Mode – Battery – Address Unit
MTVD	Download and version control tool for TCMS & converter control equipment
OS	Operating system
RDSO	Research Designs & Standard Organization
TCMS	Train Control and Management System
VCA	Vehicle Control Application
VCU	Vehicle control unit

Table 1: Abbreviations and Definitions

2 SOFTWARE PACKAGE DELIVERY

The software release is delivered as a package (Software Package baseline 1.4.1.2) file for all loco types.

The Package includes in the folders the following files:

Folder	Filenames	Description
Software_Package_Baseline_1.4.1.2 /CCUO_TCNGW	IRPRPSET_TCMS_6.0.0.14.mcp	Download container for CCUO1, CCUO2 and TCNGW MTVD OS + BL Cfg + Base Software.
Software_Package_Baseline_1.4.1.2 /CCON	IR_PRPSET_CCON_1.0.6.4.mcp	Download container for Converter Control Application MTVD. Including application software +OS + BL Cfg
Software_Package_Baseline_1.4.1.2 /HIRECT_AUX	HIRECT_Aux_Software Package-1.0.4.5.7z	Contains binary files of rectifier, inverter and Controllers inside BUR Unit.
Software_Package_Baseline_1.4.1.2 /HMI 4G	new_sw_4G_2_7_1_14_kernel3.13.tar.gz new_sw_4G_2_7_1_14_Kernel3_8.tar.gz	HMI application for HMI4G.
Software_Package_Baseline_1.4.1.2 /HMI 3G	new_sw_3G_1_7_1_14.tar.gz	HMI application for HMI3G.
Software_Package_Baseline_1.4.1.2 /Tooling/S19_Files	VCU1.S19 VCU2.S19 TCN_GW_C_1.S19	Configuration files for CCUO1: MOBAD Configuration files for CCUO2: MOBAD Configuration files for TCN_GW_C: MOBAD Note: These files are only required in case of replacement of defective controller devices. Please ask Alstom maintenance staff for details.
Software_Package_Baseline_1.4.1.2/ Tooling/OTI_FIles	4 files in sub folder OTI_Files	Event & Condition data description files for TDS Uploader & Mavis
Software_Package_Baseline_1.4.1.2 /AT_PrpSet_TDSUploader_Settings	TDS uploader settings to upload diagnostics data	TDS Uploader setting file
Documentation	3EYP600299-2089__Gen_IR_PRPset_Software Package Release Notes.docx	Release notes of this software release (this document)

Table 2: Details of Software_Package_Baseline_1.4.1.2 (424W01AT) Delivery

3 INSTALLATION

3.1 Tools

To install this software release the following tools are required. The tool revision shall at least be as specified or higher (not for the TDS Uploader).

Tool Name	Revision	Identification
MTVD Version Control and Download	2.16.0.7	3EGM081360E0301
MAPP Address Plug Programming Tool	2.14.0.3	3EGM050810E0260
DCUTERM	3.6.0.814	3EST000202-9542
Tool for Downloading Software of AUX	-	TTProgDiag

Table 3: IR / RDSO / CLW Staff Tool list

3.2 Installation instruction

Preconditions

1. Before starting installation, the tools have to be installed on the PC according to the installation instructions provided with the tools.
2. The Ethernet configuration of the PC has to be set in the following way:
   IP address range: 10.0.0.215 to 10.0.15.254
   Subnet mask: 255.255.240.0
3. Ethernet service cable RJ45 connector to M12 connector
4. Connection between PC and CCUO1/CCUO2/TCNGW is established on ethernet.
5. Connection to processor of Auxiliary converter shall be established by RS232 interface.

Step1: Vehicle and PC preparation

1. Check for good charged vehicle battery before starting installation or use the direct 110V DC power set.
2. Bring vehicle to a safe state by applying brake, switching off MCB and lower pantographs.
3. Connect the PC by Ethernet to the Ethernet connector in cab 2 for Converter or CCUO1/CCUO2/TCNGW download.
4. Extract the Release Zip file on the PC and the included zip files as well.

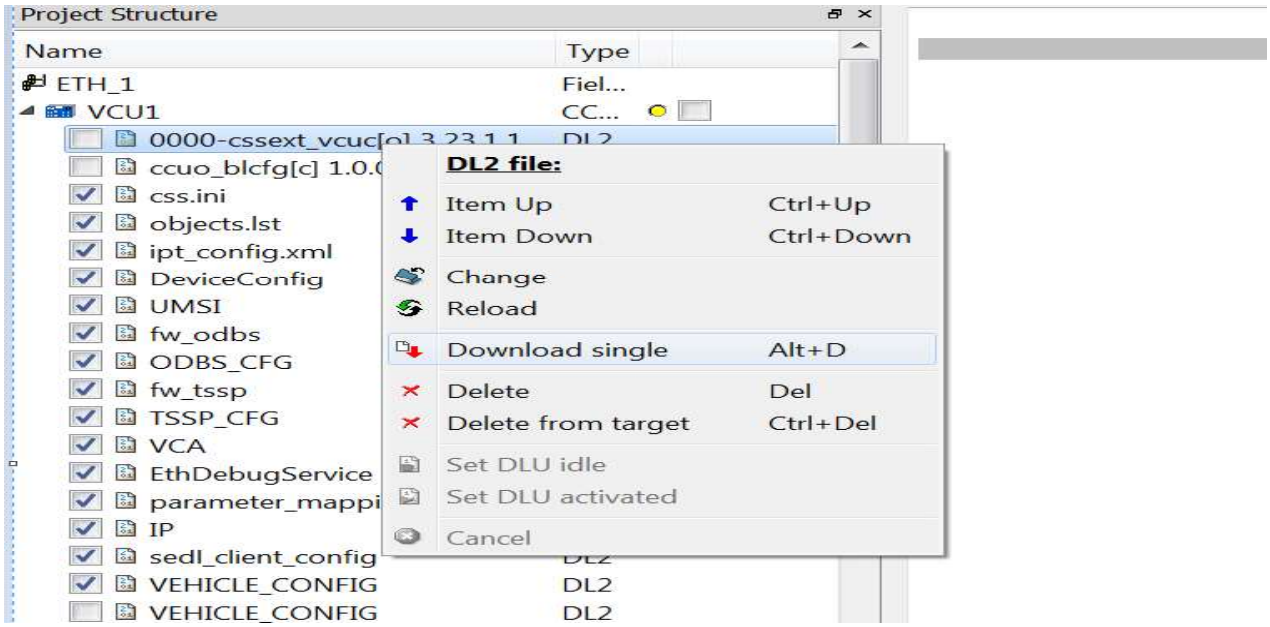
Step 2: If installing software for the first time: Download OS to CCUO1/CCUO2/TCNGW

1. Open download configuration IRPRPSET_TCMS_6.0.0.14.mcp

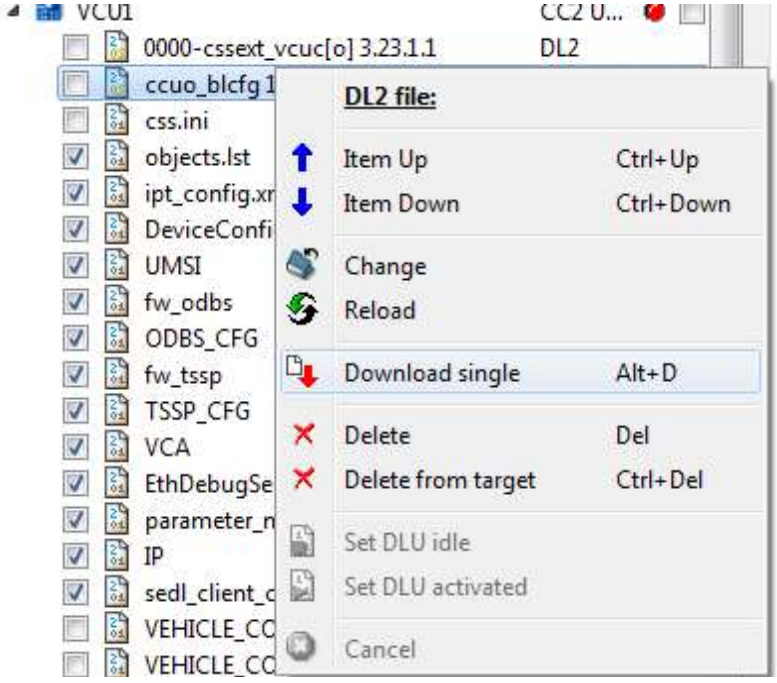
2. Start connection check to CCUO1 by right clicking on the device.

3. This will check communication with VCU1 and if established the LED glow Green colour otherwise Red.

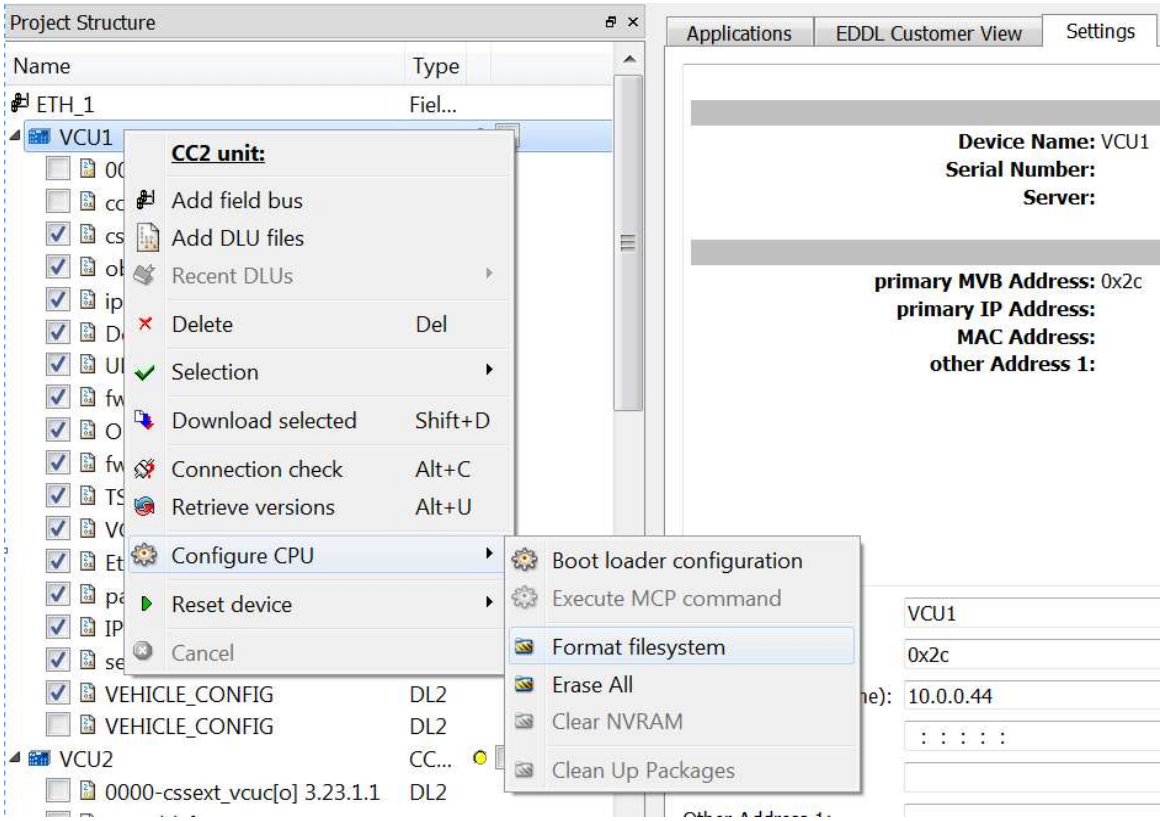
4. Right Click on the 0000-cssext_vcuc[o] 3.25.0.1File to download OS of device. Select the download single as shown in below figure.



1. Once the OS is downloaded, right click on ccuo_blcfg 1.0.0.1 and select download single.



2. By Right clicking on CCUO1 device, select format file system present in configure CPU as shown in below figure.

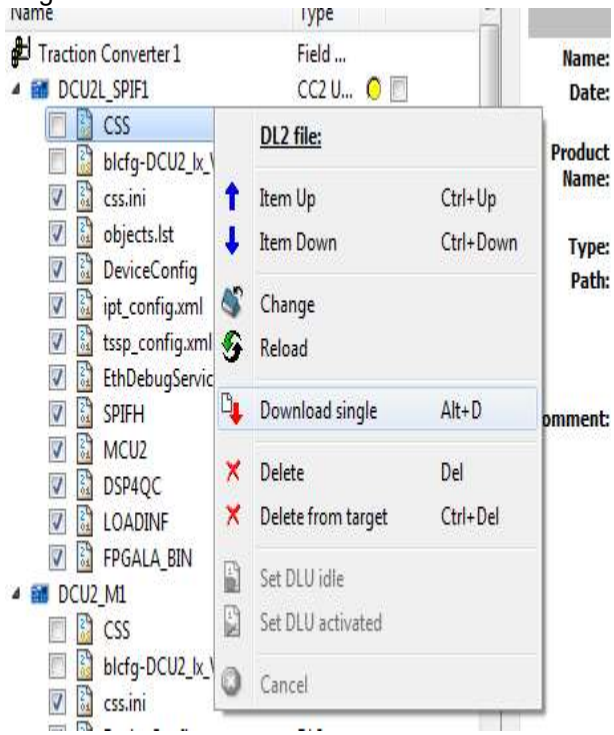


3. Repeat the above steps for CCUO2, TCNGW.

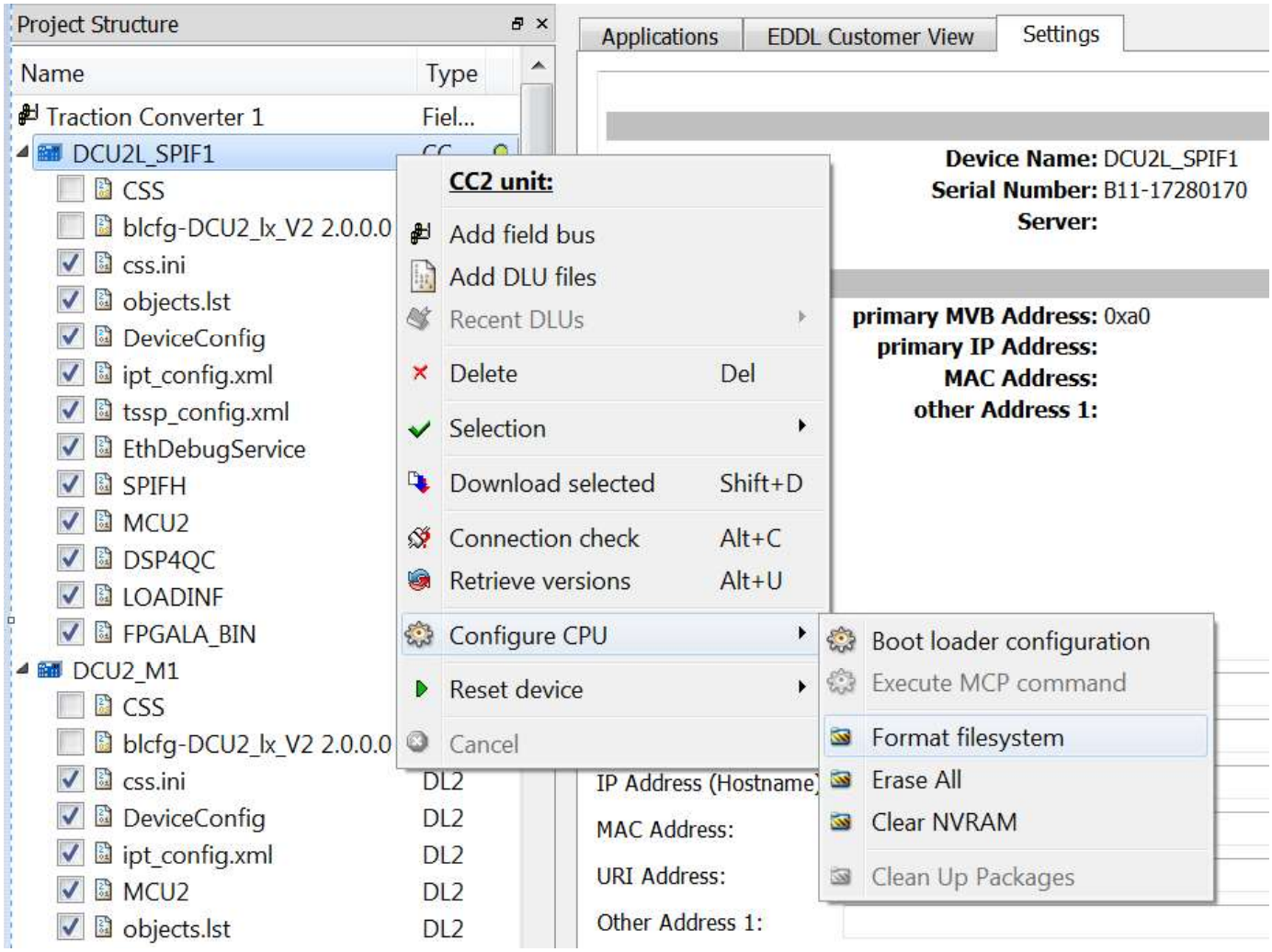
Step 3: If installing software for the first time: Download OS to DCU

Open download configuration IR_PRPSET_CCON_1.0.5.4.mcp

1. Start connection check to all devices and download CSS (OS) by right clicking on CSS and selecting download single.
2. Similarly download the blcfg-DCU2_lx_V2 2.0.0.0 file by right clicking on it and select the download single.



3. After successful download, right clicking on the device and select Format file system in Configure DCU. This creates file system.



Step4: Download Base software from PC to CCUO1/CCUO2/TCNGW

1. Open download configuration IRPRPSET_TCMS_6.0.0.14.mcp
2. Start connection check to CCUO1, CCUO2 and TCNGW
3. Select CCUO1 Base Software package to download with description as below. Ensure that file 0000-cssext_vcuc[o] is **NOT** Selected.
4. After download is finished successfully, select VCU1, right click and select Reset device→restart to OS Run
5. Repeat steps for CCUO2, TCNGW.

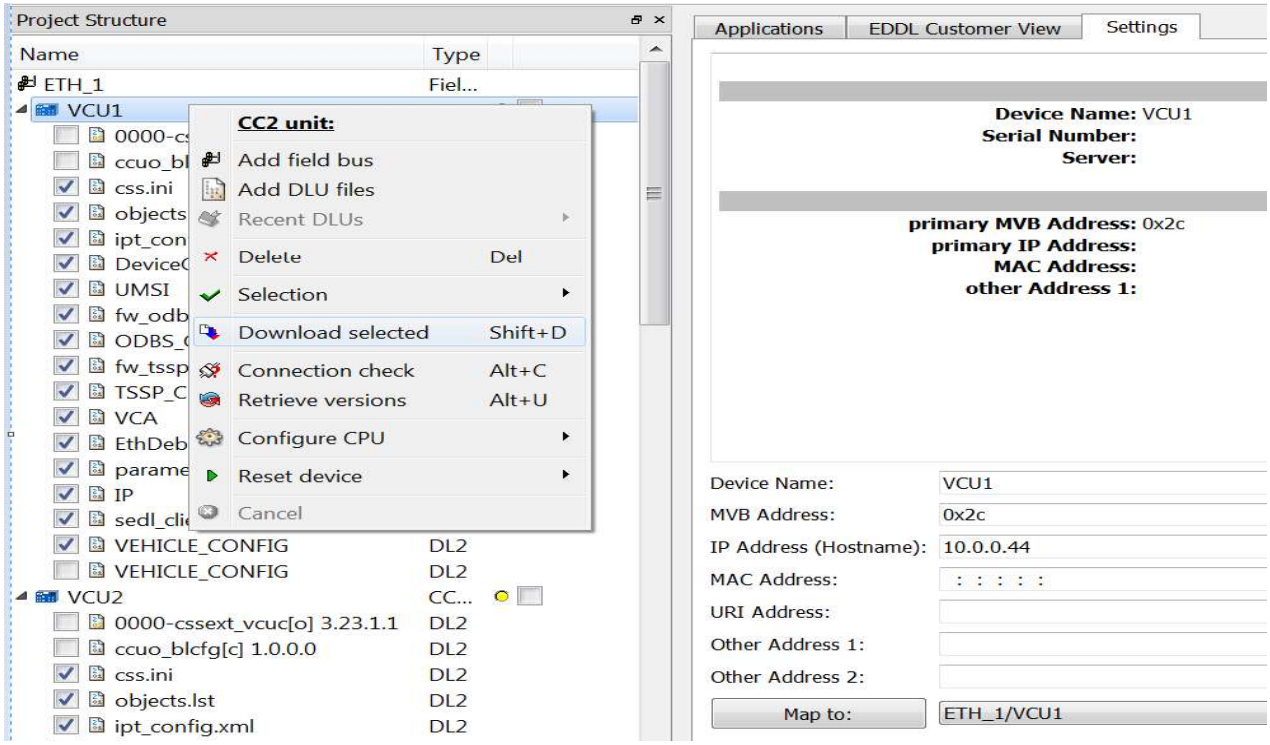
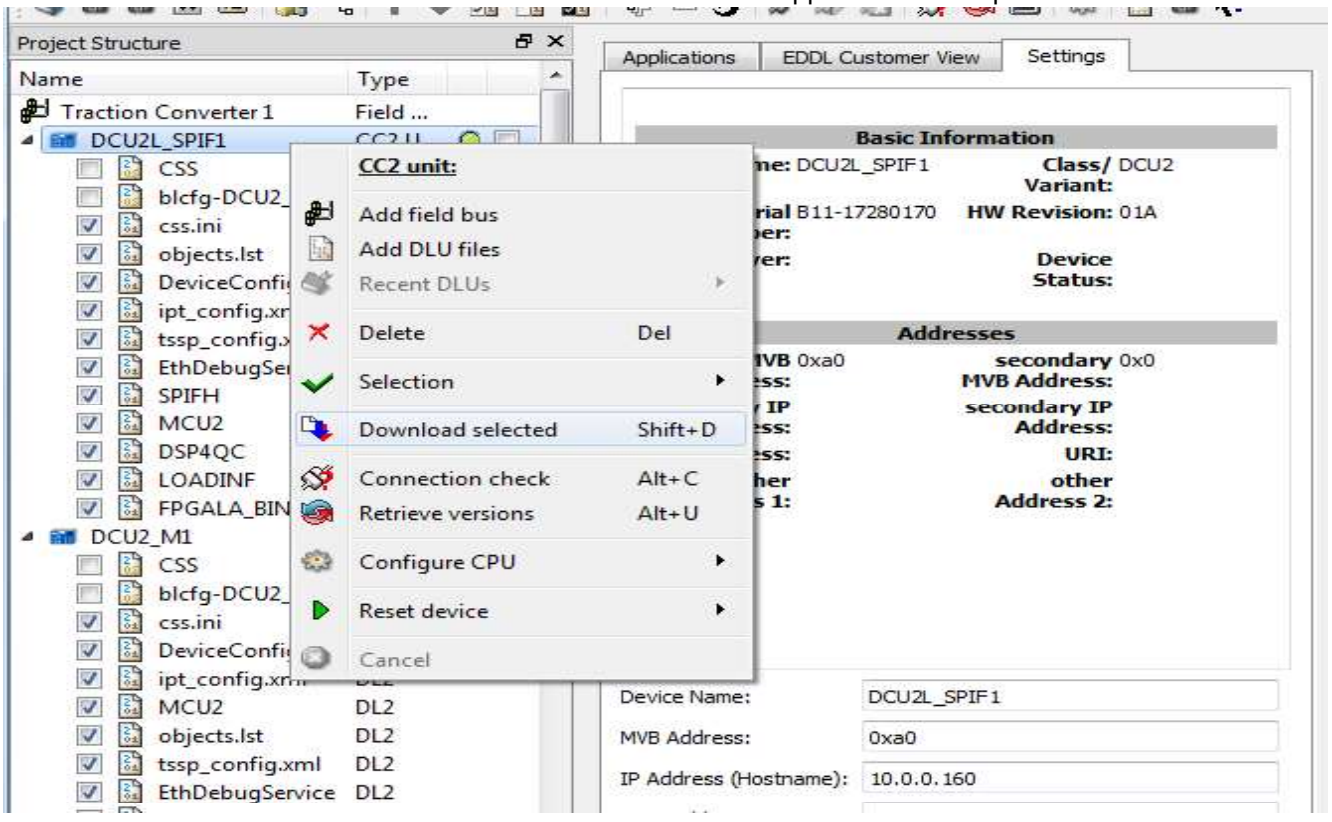


Figure 1: Download Application via MTVD

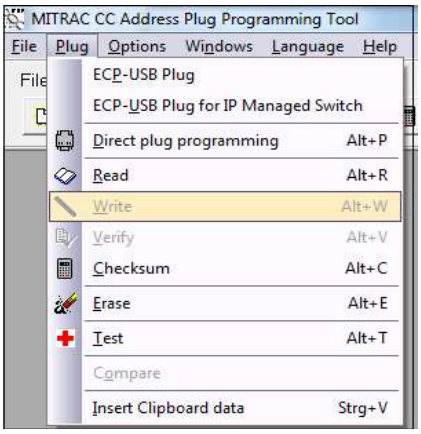
Step5: Download Base software from PC to DCU

1. Open download configuration IR_PRPSET_CCON_1.0.5.4.mcp
2. Start connection check to all CCON DCUs and Download the applications to respective DCUs



Step 6: Flash MOBAD configuration for CCUO1, CCUO2 and TCNGW MOBD using MAPP Tool : Plug→Write

1. Before executing command ensure MOBAD is connected to PC using USB to DB9 cable.
2. Select file to write and execute write option as shown below.



- Perform the above steps 1, 2 for CCUO1 with file: VCU1.S19
- Perform the above steps 1, 2 for CCUO2 with file: VCU2.S19
- Perform the above steps 1, 2 for TCNGW with file: TCN_GW_C_1.S19

Step 7: HMI Software shall be downloaded on DDUs using web interface via http://10.0.0.200/login.php for DDU1 and http://10.0.0.201/login.php for DDU2. Login with user's name: admin password: eiWEB.

Step 8: Aux Software shall be downloaded on BUR1, BUR2 and BUR3 using RS232 interface via TTProDiag tool. Details are part of documentation "Software Uploading Procedure using FLASHit in Control Cards.pdf" shared part of software package.

4 CHANGES:

4.1 Software Package 1.4.1.2 Release:

4.1.1 New or enhanced functions

CCUO:

- Resolution of issue - isolation of SR during energy saving mode, in software version 1.4.1.1

CCON:

- Initiating a protective blocking instead of protective shutdown during disturbance in converter due to line voltage very low during operation. – Disturbance in converter message issue
- During Braking conditions, improvised line and motor pulsing control to handle OVC Temp too High Issue.

BUR:

- None

HMI:

- None

4.1.2 Adaptations and corrected errors

CCUO: None.

CCON: None

BUR: None

HMI: None

4.1.3 Known problems

CCUO: None

CCON: None

BUR: None

HMI: None.

5 HISTORY OF CHANGES

5.1 Software Package 1.4.1.1 Release:

5.1.1 New or enhanced functions

CCUO:

- Resolved issue related to traction reduction due to compressor ON/OFF when any one BUR isolated.
- Enhanced logic of converter isolation due to coolant pressure low message.

CCON:

- None

BUR:

- None

HMI:

- None

5.1.2 Adaptations and corrected errors

CCUO: None.

CCON: None

BUR: None

HMI: None

5.1.3 Known problems

CCUO: None

CCON: None

BUR: None

HMI: None.

5.2 Software Package 1.4.1.0 Release:

5.2.1 New or enhanced functions

CCUO:

- Resolved issue related to traction loss / speed loss observed in 1.4.0.9 release only.
- Resolved node stuck at 592 when one bogie isolated observed in 1.4.0.9 release only.

CCON:

None

BUR:

- Modified control logic for NO BUR Output frequency

HMI:

- Modified Diagnostic messages Priority.

5.2.2 Adaptations and corrected errors

CCUO: None.

CCON: None

BUR: None

HMI: None

5.2.3 Known problems

CCUO: None

CCON: None

BUR: None

HMI: None.

5.3 Software Package 1.4.0.9 Release (423W02AT)

5.3.1 New or enhanced functions

CCUO:

- Hotel load changes done in 1.4.0.8 withdrawn.
- Removal of Coolant Pressure VS Tractive effort logic.
- Changed the plausibility factor & comparison factor for the transformer temperature (Transformer temperature greater than limit 2 issue)
- VCB Not Reclosing Issue Resolved.
- Added “energy saving mode” logic for BUR (applicable for New Design Aux Converter V1-2)
- ACP logic modification Reverted which was implemented in 1.4.0.5

CCON:

- Variable Reference DC Link voltage based on Shaft Power added.

BUR:

New Design of Aux Converter V1-2

- Energy saving mode is incorporated.
- “Battery charger less than 10amps” messages timing increased from 30 seconds to 2 minute 30 seconds to avoid spurious messages.
- “Battery voltage below 92 & 86 volt” messages timing increases from 30 seconds to 1 minute to avoid spurious messages.

Old Design of Aux Converter

- Now “No BUR output message” will come only when a permanent output frequency is not available.

HMI:

- Added energy saving mode event.
- Added TM isolation status icon on home screen.

5.3.2 Adaptations and corrected errors

CCUO: None.

CCON: None

BUR: None

HMI: None

5.3.3 Known problems

CCUO: None

CCON: None

BUR: None

HMI: None.

5.4 Software Package Release 1.4.0.8 (423W01AT)

5.4.1 New or enhanced functions

CCUO:

- Part of OVC Issues for Pre-charging DC Link
- Resolved HLC when VCB switched on.
- Part of OVC Issues Filter Configuration Transition from Bogie1 to Bogie2 Logic Modified.
- Part of OVC issues Timeout of Pulse command Bogie Isolation Added FLG node with DCU Node
- Hotel Load Requirement Logic Modified for Low Pressure Main Reservoir.

CCON:

1. DC Link Under Voltage Supervision.
2. Relaxation in Fast Blocking Due to Speed Sensor.
3. DC Link Charge Inhibit Due Brake Resistor Over Temperature.

BUR:

None

HMI:

None

5.4.2 Adaptations and corrected errors

CCUO: None.

CCON: None

BUR: None

HMI: None

5.4.3 Known problems

CCUO: None

CCON: None

BUR: None

HMI: None.

5.5 Software Package Release 1.4.0.7 (422W02AT)

5.5.1 New or enhanced functions

CCUO:

1. DPWCS is merged with Main Branch
2. WTB Interoperability is also merged with Main Branch
3. VCU comm lost issue is resolved

4. System behaviour during earth fault in HL converter is improved
5. Angle transmitter fault in 504 node is resolved
6. Slave to Master Event Transfer in WTB
7. Standalone Loco operation without Gateway
8. CCU Logic update for HMI ACK functionality like BPFA Ack with last fault
9. Message is not pop up if input is high of DO- Earth Fault
10. Update of logic as per requirement Banking mode in DPWCS
11. More than two cab occupy info message

CCON:

None

BUR:

1. D429 Communication Module: Reduced timing from 30 mins to 5 mins of isolation demand signal after 3 attempts in NO bur out condition.
2. Additional Checked of error bits for DCLinkV_TooLow and InputVoltNOK to avoid spurious messaging.
3. BUR-1 output frequency parameter from 50Hz to 44Hz to avoid OCB failure
4. Improvements on DC Link voltage Stabilization during Panto Bouncing and during vent level operation

HMI:

1. Issue of messages from Slave to Master is resolved both in DPWCS and WTB
2. Issue with Cat2 fault reset from Cab2 is resolved
3. HMI Kernel update
4. Modified HMI ACK functionality (Same as BPFA Ack for last fault)

5.5.2 Adaptations and corrected errors

CCUO: None.

CCON: None

BUR: None

HMI: None

5.5.3 Known problems

CCUO: None

CCON: None

BUR: None

HMI: None.

5.6 Software Package Release 1.4.0.5 (422W01AT):

5.6.1 New or enhanced functions

CCUO:

1. VCB not closing after crossing neutral section/ catenary voltage out of limits.
2. Panto Bouncing – Traction Interlock – info message.
3. Category 2 fault reset from HMI (DDU)
4. Reset of Traction Motor permanent isolation
5. ACP Train Parting- Disable Traction interlock
6. OHE voltage related issue at the time of Panto down
7. MR Pressure low message.
8. LSHO lamp glowing as per new and old schematics.

9. BPCS tuning.
10. BPFA glowing for P3 Faults.

CCON:

1) Pinion failure Implementation
2) Improvements on supervision of speed sensor faults
3) Improvements on DC link over voltage

BUR:

5. Battery Charger Overcurrent not coming from BUR3 has been resolved.
6. Optimized timings for following signals for avoid spurious messaging.
    a. DC Link Overcurrent.
    b. DC Link Overvoltage.
    c. Battery Charger Overcurrent.
    d. Battery Overcurrent.
    e. BatteryChargerBelow10A.
7. BUR 1/2/3 No output frequency during panto bouncing.
8. Earth fault detection from BUR 1/2/3.
9. DSP Error leading to BUR Isolation during Bootup

HMI:

1) CAT2 reset from HMI.
2) OS Update for HMI

5.6.2 Adaptations and corrected errors

CCUO: None.

CCON: None

BUR: None

HMI: None

5.6.3 Known problems

CCUO: None

CCON: None

BUR: None

HMI: None.

5.7 Software Package Release 1.4.0.4 (421W01BT):

5.7.1 New or enhanced functions

CCUO:

1) The time of auto Flasher updated to 60 sec.
2) In case of Bogie isolation monitoring of corresponding Trafo pressure / temp signal is masked.
3) Functionality of VCB tripping with catenary voltage out of limits corrected.
4) Push Pull Panto Sequence updated.

CCON:

5) Resolved Wheel diameter corruption leading to Bogie isolation.

BUR:

None

HMI:

None

5.7.2 Adaptations and corrected errors

CCUO:

Updated Operation System of CCUO devices to 3.25.0.1 version.

CCON:

None

BUR:

None

HMI:

None

5.7.3 Known problems

CCUO:

None

CCON:

None

BUR:

None

HMI:

None.

5.8 Software Package Release 1.3.9.8 (420W02BT)

5.8.1 New or enhanced functions

CCUO:

None

CCON:

1) Wheel diameter maximum value set to 1098.

BUR:

None

HMI:

None

5.8.2 Adaptations and corrected errors

CCUO:

None

CCON:

None

BUR:

None

HMI:

None

5.8.3 Known problems

CCUO:

None

CCON:

None

BUR:

None

HMI:

None.

5.9 Software Package Release 1.3.9.6 (420W01BT)

5.9.1 New or enhanced functions

CCUO:

1) Resolved ZPT long press required for raising Pantograph
2) For properly handling angle transmitter failure messages, angle transmitter Scaling is improved for allowing current up to 21mA.
3) Shunting Mode messages shall appear after every movement of MAC position from Zero to Traction
4) Water Closet Functionality
5) Allowing wheel diameter maximum value to 1098 mm
6) Resolved Hotel load ON command timing issue

CCON:

6) Line side converter control parameters are fine tuned to reduce IGAT failures

BUR:

1) To resolve unknown BUR frequent re-start without BUR isolation.
2) To avoid frequent BUR isolation by changing BUR restoring events.

HMI:

1) Water Closet Occupied Message added.
2) Allowing Max. Wheel diameter value to 1098 mm from entering on HMI.

5.9.2 Adaptations and corrected errors

CCUO:

None

CCON:

None

BUR:

None

HMI:

None

5.9.3 Known problems

CCUO:

None

CCON:

None

BUR:

None

HMI:

None.

6 DEPENDENCIES

6.1 Compatibility to earlier software releases

TCMS Software:

Compatible with earlier release having enhanced functionalities in latest release.

CCCON/ BUR:

Compatible with earlier release having enhanced functionalities in latest release.

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HMI4G:

New Operating system file name as "*hmi-o-btroq_new_sw_kernel_and_xlmb_and_bootup_only.tar*" to be downloaded with application.

6.2 Hardware dependencies

The software can be used on all WAG9, WAG9H, WAP7 with and without Hotel load, WAP5 locomotives with the Alstom Propulsion set equipment. Locomotive configuration file to be downloaded as per Vehicle configuration in CCUO.
There are no other known hardware dependencies.

7 HIGH LEVEL SUMMARY OF SOFTWARE VERSIONS

Device	Software_Package_Baseline_1.4.1.2 Version (424W01AT)	Software_Package_Baseline_1.4.1.1 Version (424W01AT)
CCUO1	6.0.0.14	6.0.4.13
CCUO2	6.0.0.14	6.0.4.13
TCNGW	0.1.0.2	0.1.0.2
DCUL/SPIF	1.0.6.4	1.0.5.4
DCUM	1.0.6.4	1.0.5.4
HMI4G	2.7.1.14	2.7.1.14
HMI3G	1.7.1.14	1.7.1.14
BUR1_ V1	1.8.3.4	1.8.3.4
BUR2_V1	2.8.3.4	2.8.3.4
BUR3_V1	3.8.3.4	3.8.3.4
BUR1_V2	1.0.0.8	1.0.0.8
BUR2_V2	2.0.0.8	2.0.0.8
BUR3_V2	3.0.0.8	3.0.0.8

Table 4: Software Versions

8 VERSION INFORMATION FOR SOFTWARE_PACKAGE_BASELINE

8.1 Vehicle Control software

The software version screen on the drivers display shows the version of the CCUO1 and CCUO2.

Device name	Device ID	Built in cubicle	Device type	IP-address
CCUO1		TC1	VCU-C	10.0.0.44
CCUO2		TC2	VCU-C	10.0.0.46
TCNGW		VCU-Cubicle 1	TCN-GW-C	10.0.0.6

Used on Device	Application type	Application name	Software Package 1.4.1.2 (424W01AT)	Software Package 1.4.1.1 (424W01AT)
CCUO1	DL2-standard	VCU-C Operating System	3.25.0.1	3.25.0.1
CCUO1	Cfg	CCUO blcfg[c]	1.0.0.1	1.0.0.1
CCUO1	AP	Software Application	6.0.0.14	6.0.4.13

Table 5: CCUO1 Base Software Package

Used on Device	Application type	Application name	Software Package 1.4.1.2(424W01AT)	Software Package 1.4.1.1(424W01AT)
CCUO2	DL2-standard	VCU-C Operating System	3.25.0.1	3.25.0.1
CCUO2	Cfg	CCUO blcfg[c]	1.0.0.1	1.0.0.1
CCUO2	AP	Software Application	6.0.0.14	6.0.4.13

Table 6: CCUO2 Base Software Package

Used on Device	Application type	Application name	Version
TCNGW	DL2-standard	TCNGW Operating System	3.10.3.0
TCNGW	Cfg	tcngw_blcfg	1.0.0.1
TCNGW	AP	Software Application	0.1.0.2

Table 7: TCNGW Base Software package

8.2 Converter Control software

Device name	Built in cubicle	Device type	IP-address	MVB Address
DCU2L_SPIF1	TC1	DCU-2	10.0.0.160	0xa0
DCU2_M1	TC1	DCU-2	10.0.0.161	0xa1
DCU2_M2	TC1	DCU-2	10.0.0.162	0xa2
DCU2_M3	TC1	DCU-2	10.0.0.167	0xa7
DCU2L_SPIF2	TC2	DCU-2	10.0.0.136	0x88
DCU2_M4	TC2	DCU-2	10.0.0.137	0x89
DCU2_M5	TC2	DCU-2	10.0.0.138	0x8a
DCU2_M6	TC2	DCU-2	10.0.0.143	0x8f

Table 8: CON Control Device IP Addresses

Used on Device	Application type	File name	Software Package 1.4.1.2 (424W01AT)	Software Package 1.4.1.1 (423W03AT)
DCU2L_SPIFn	OS	DCU2 Operating System	3.16.1.2	3.16.1.2
DCU2L_SPIFn	OS Cfg	Blcfg-DCU2_ix_V2 2.0.0.0	2.0.0.0	2.0.0.0
DCU2L_SPIFn	AP	Software Application	1.0.6.4	1.0.5.4
DCU2_Mn	OS	DCU2 Operating System	3.16.1.2	3.16.1.2
DCU2_Mn	OS Cfg	Blcfg-DCU2_ix_V2 2.0.0.0	2.0.0.0	2.0.0.0
DCU2_Mn	AP	Software Application	1.0.6.4	1.0.5.4

Table 9: CON processors application versions

8.3 HMI Software

Device	Type	File name	Software Package 1.4.1.2 (424W01AT)	Software Package 1.4.1.1 (424W01AT)
HMI4G	Bin	new_sw_4G_2_7_1_11_kernel3.13.tar.gz new_sw_4G_2_7_1_11_Kernel3_8.tar.gz	2.7.1.14	2.7.1.14
HMI3G	Bin	new_sw_3G_1_7_1_11.tar.gz	1.7.1.14	1.7.1.14

Table 10: HMI Application Version

8.4 BUR Software

BUR	Software Package 1.4.1.2 (424W01AT)	Name of File	Software Package 1.4.1.0 (423W03AT)	Name of File
BUR1	1.8.3.4	zins1834.elf	1.8.3.4	zins1834.elf
BUR2	2.8.3.4	Zins2834.elf	2.8.3.4	Zins2834.elf
BUR3	3.8.3.4	Zins3834.elf	3.8.3.4	Zins3834.elf

Table 11: BUR-Diagnostics processors software Version

Details	BUR	Control Card Details	Software Package 1.4.1.2 (424W01AT)	Name of downloadable File	Software Package 1.4.1.0 (423W03AT)	Name of downloadable File
Software for Main Control Cards (2000-138, 2000-139 & 2000-140)	BUR1	2000-138	Rev. R14A	HB13814A50HZ.hex	Rev. R14A	HB13814A50HZ.hex
	BUR1	2000-139	Rev. R14A	HB13914A50HZ.hex	Rev. R14A	HB13914A50HZ.hex
	BUR2	2000-138	Rev. R14A	HB23814A50HZ.hex	Rev. R14A	HB23814A50HZ.hex
	BUR2	2000-139	Rev. R14A	HB23914A50HZ.hex	Rev. R14A	HB23914A50HZ.hex
	BUR3	2000-138	Rev. R14A	HB33814A50HZ.hex	Rev. R14A	HB33814A50HZ.hex
	BUR3	2000-139	Rev. R14A	HB33914A50HZ.hex	Rev. R14A	HB33914A50HZ.hex
	LVPS	2000-140	Rev. R14A	HBC4013A.hex	Rev. R14A	HBC4013A.hex
	BUR1	2000-138	Rev. R14B	HB13814B44HZ.hex	Rev. R14B	HB13814B44HZ.hex
	BUR1	2000-139	Rev. R14B	HB13914B44HZ.hex	Rev. R14B	HB13914B44HZ.hex
	BUR2	2000-138	Rev. R14B	HB23814B44HZ.hex	Rev. R14B	HB23814B44HZ.hex
	BUR2	2000-139	Rev. R14B	HB23914B44HZ.hex	Rev. R14B	HB23914B44HZ.hex
	BUR3	2000-138	Rev. R14B	HB33814B44HZ.hex	Rev. R14B	HB33814B44HZ.hex
	BUR3	2000-139	Rev. R14B	HB33914B44HZ.hex	Rev. R14B	HB33914B44HZ.hex
	LVPS	2000-140	Rev. R14B	HBC40013B.hex	Rev. R14B	HBC40013B.hex

Table 12: BUR- CCU/LVPS Control Unit processors software Version

9 REVISION HISTORY

Rev.	Edited	Checked	Approved	Remark
—	2020-09-21 Tejeswar Nukala	2020-09-22 Ketan Shah	2020-09-22 Kalpesh Devariya	1.3.9.8 package release notes with new format
_A	2021-04-29 Tejeswar Nukala	2021-05-10 Ketan Shah	2021-05-10 Kalpesh Devariya	1.4.0.4 software package details
_B	2022-01-10 Sridhar V	2022-01-12 Ketan Shah	2022-01-12 Antoine B	1.4.0.5 software package details
_C	2022-09-21 Sridhar V	2022-09-21 Ketan Shah	2022-09-21 Antoine B	1.4.0.7 software package details
_D	2023-04-03 Jyotiprakash Khuntia	2023-03-27 Ketan Shah	2023-03-27 Ketan Shah	1.4.0.8 software package details
_E	2023-10-06 Jyotiprakash Khuntia	2023-10-03 Sai Prabhath D	2023-10-03 Sai Prabhath D	1.4.0.9 software package details
_F	2023-12-13 Tejeswar Nukala	2023-12-13 T Tany Ann	2023-12-13 T Tany Ann	1.4.1.0 software package details
_G	2024-02-22 Tejeswar Nukala	2024-02-22 T Tany Ann	2024-02-22 T Tany Ann	1.4.1.1 software package details
_H	2024-05-02 M Vijay Anand	2024-05-02 K Manoj Kumar	2024-05-02 S Sourav	1.4.1.2 software package details