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Saved:

Sequence
index:

1

IR Propulsion Set

Software Package Release Notes V 1.3.8.5



WAP7



WAG9/WAG9H

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1. Introduction

1.1 Abstract

This document contains the release notes information for all software delivered by Bombardier for Propulsion Systems installed in WAG9/9H, WAP7 locomotives with or without Hotel Load Converter. Describes all released versions (Software_Package_Baseline_1.3.8.5).

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

| | | | | |
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2. Software Package Delivery

The software release is delivered as a package (Software Package baseline 1.3.8.5) file and is not compatible with the previous releases.

The Package includes in the folders the following files:

| Folder | Filenames | Description |
|-------------------------------------------------------------------|----------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Software_Package_Baseline_1.3.8.5 /CCUO_TCNGW | IRPRPSET_TCMS_1.6.6.0.mcp | Download container for CCUO1, CCUO2 and TCNGW MTVD OS + BL Cfg + Base Software. |
| Software_Package_Baseline_1.3.8.5 /CCON | IR_PRPSET_CCON_1.0.2.9.mcp | Download container for Converter Control Application MTVD. Including application software +OS + BL Cfg |
| Software_Package_Baseline_1.3.8.5 /HIRECT_AUX | HIRECT_Aux_Software Package-1.0.3.0.7z | Contains binary files of rectifier, inverter and Controllers inside BUR Unit. |
| Software_Package_Baseline_1.3.8.5 /HMI_4G | new_sw_4G_2_5_5_0_19_June_2019.tar.gz | HMI application for HMI4G. |
| Software_Package_Baseline_1.3.8.5 /Tooling/S19_Files | VCU2.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 Bombardier maintenance staff for details. |
| Software_Package_Baseline_1.3.8.5 /Tooling/OTI_Files | 4 files in sub folder OTI_Files | Event & Condition data description files for TDS Uploader & Mavis |
| Software_Package_Baseline_1.3.8.5 /BT_PrpNet_TDSUploader_Settings | TDS uploader settings to upload diagnostics data | TDS Uploader setting file |
| Documentation | 3EYP600299-2086__en_IR_PRPset_Software Package Release Notes V1.3.8.5.docx | Release notes of this software release (this document) |

Table 2: Details of Software_Package_Baseline_1.3.8.5 (419W02BT) Delivery

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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

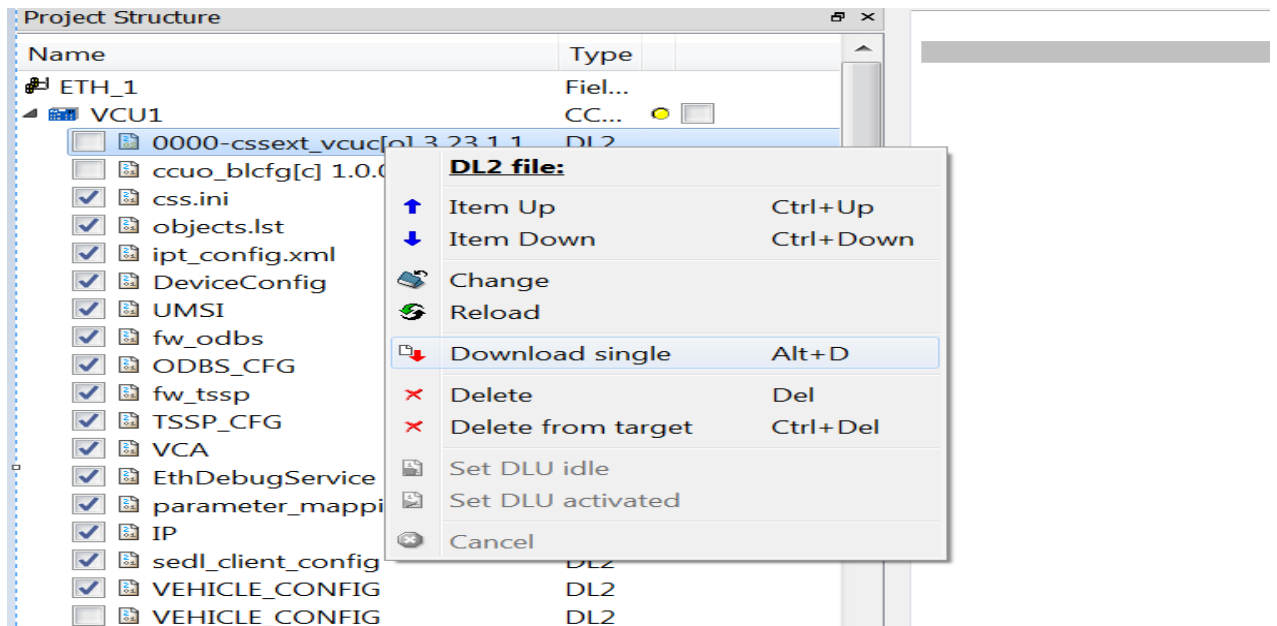
1. Before starting installation, the tools have to be installed on the PC according to the installation instructions provided with the tools.
2. The Ethernet configuration of the PC has to be set in the following way:
IP address range: 10.0.0.215 to 10.0.15.254
Subnet mask: 255.255.240.0
3. Ethernet 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

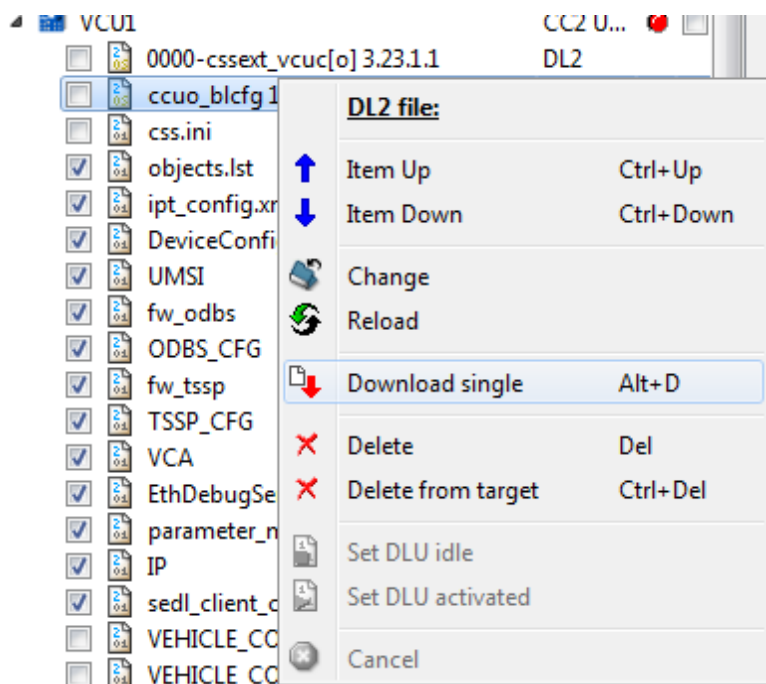
1. Check for good charged vehicle battery before starting installation or use the direct 110V DC power set.
2. Bring vehicle to a safe state by applying brake, switching off MCB and lower pantographs.
3. Connect the PC by Ethernet to the Ethernet connector in cab 2 for Converter or CCUO1/CCUO2/TCNGW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

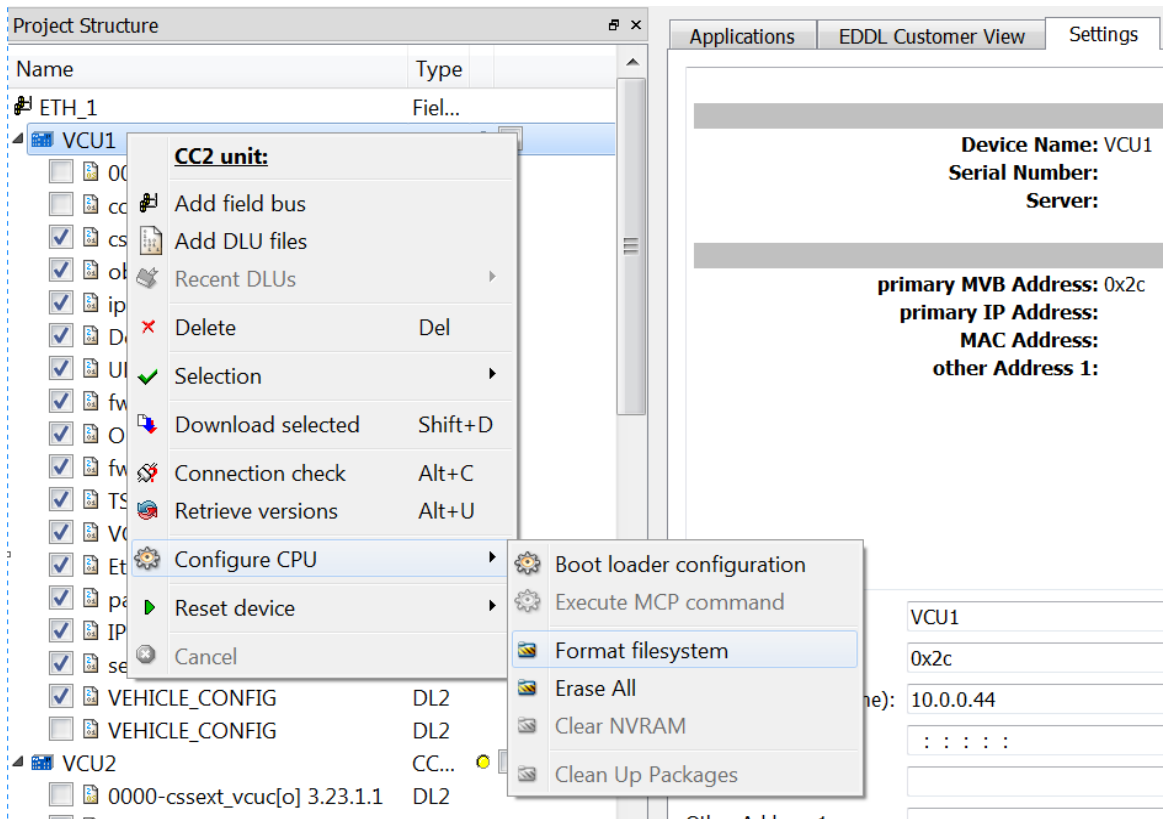
1. Open download configuration IRPRPSET_TCMS_1.6.6.0.mcp
2. Start connection check to CCUO1 by right clicking on the device.
3. This will check communication with VCU1 and if established the LED glow Green colour otherwise Red.
4. Right Click on the 0000-cssex_tvcuc[o] 3.23.1.1 File to download OS of device. Select the download single as shown in below figure.



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



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

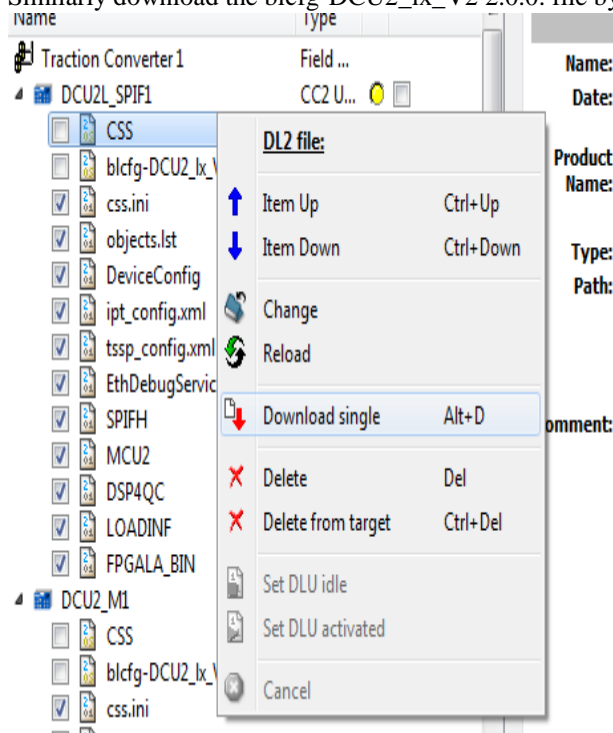


7. Repeat the above steps for CCUO2, TCNGW.

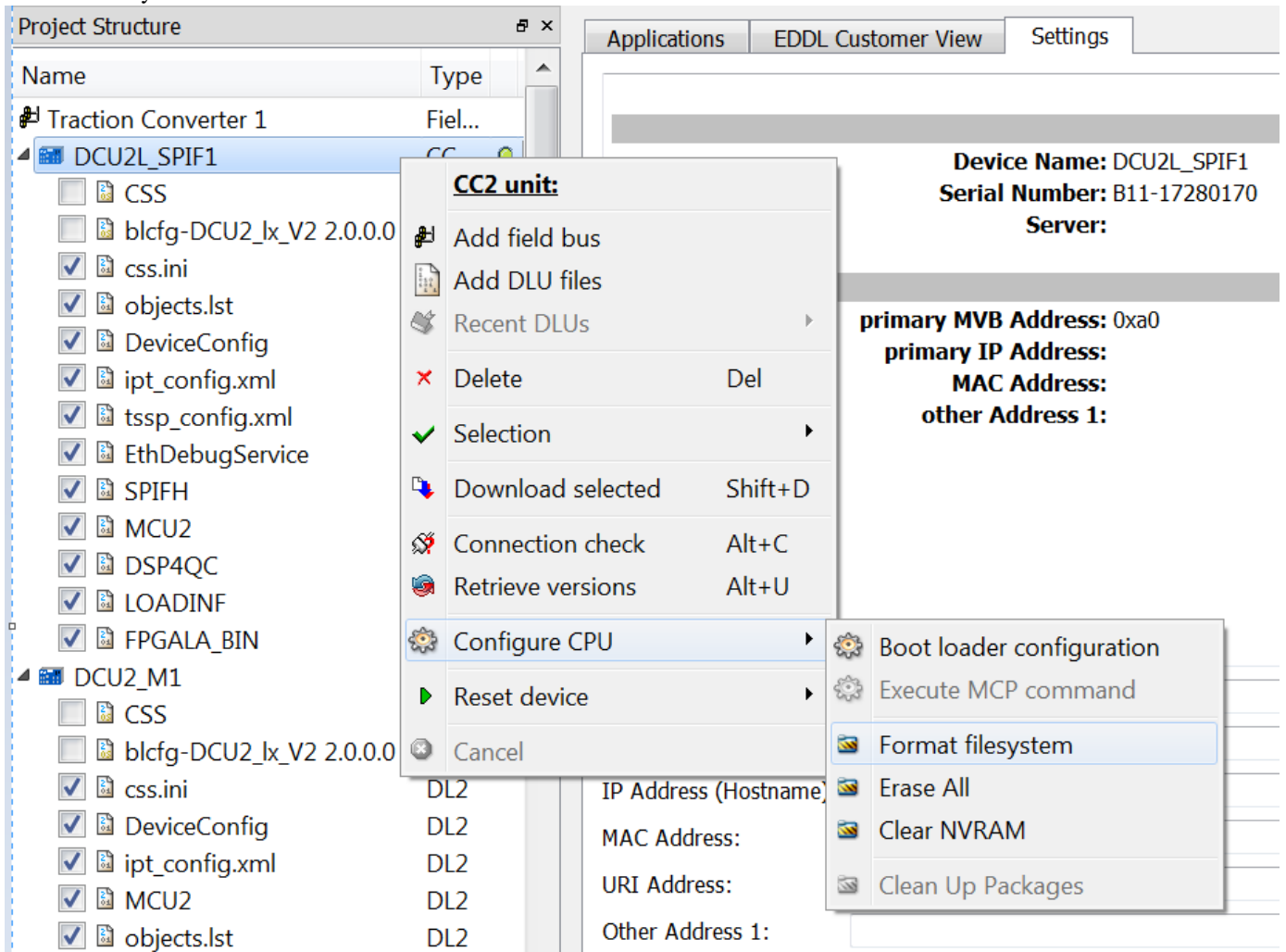
Step 3: If installing software for the first time: Download OS to DCU

Open download configuration IR_PRPSET_CCON_1.0.2.9.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. file by right clicking on it and select the download single.



- 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 CCU01/CCU02/TCNGW

- Open download configuration IRPRPSET_TCMS_1.6.6.0.mcp
- Start connection check to CCU01, CCU02 and TCNGW
- Select CCU01 Base Software package to download with description as below. Ensure that file 0000-cssex_vcuc[o] is **NOT** Selected.
- After download is finished successfully, select VCU1, right click and select Reset device → restart to OS Run
- Repeat steps for CCU02, TCNGW.

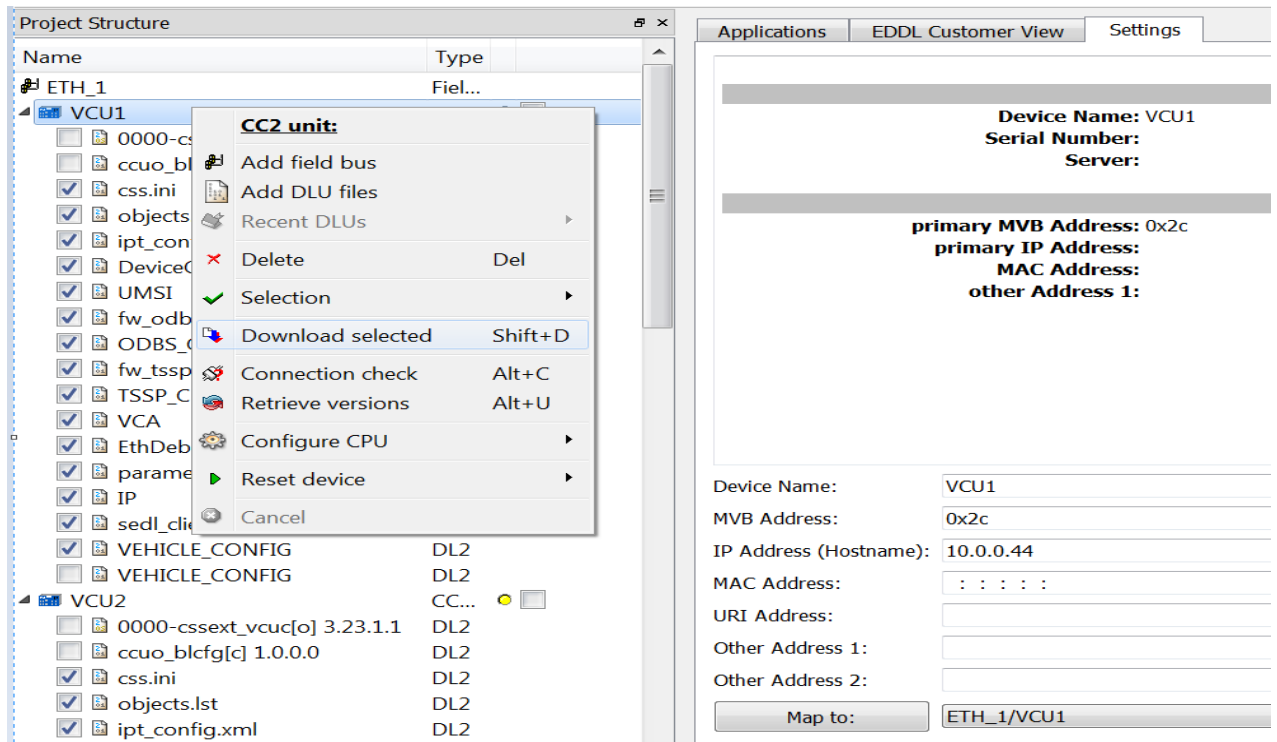
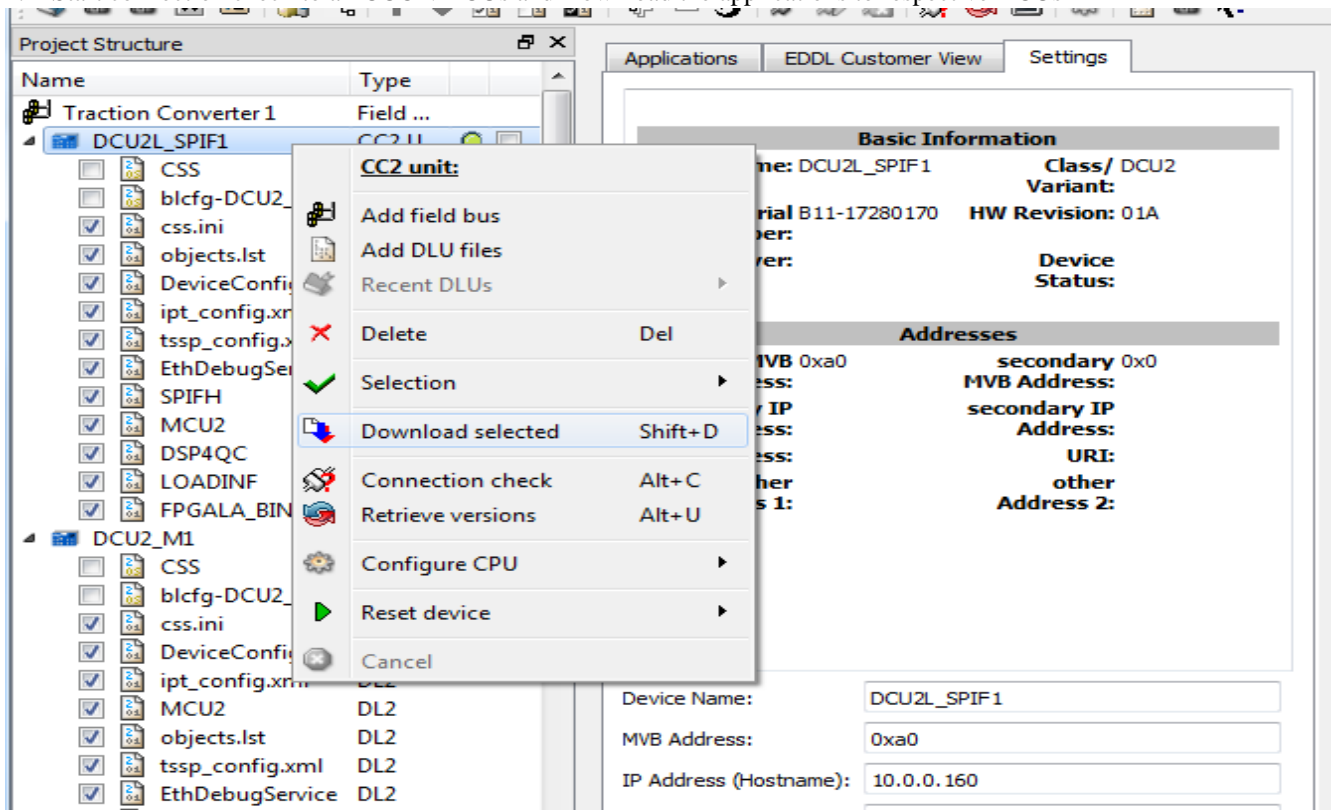


Figure 1: Download Application via MTVD

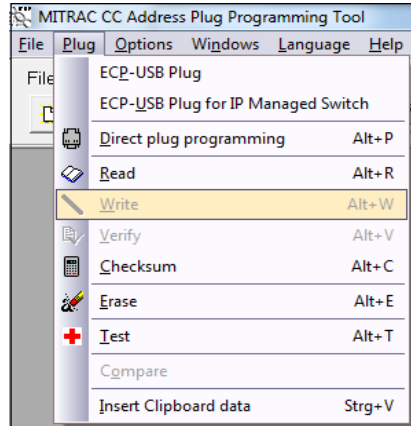
Step5: Download Base software from PC to DCU

1. Open download configuration IR_PRPSET_CCON_1.0.2.9.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 DDU's 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.

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4. Changes:

4.1 New or enhanced functions

CCUO:

- 1) VCU ramping up demanded tractive efforts based on ramping of auxiliary converter while Neutral Section Negotiation.
- 2) Auto Flasher light functionality

CCON:

- 1) DC-link Over voltage while braking mode of locomotive
- 2) OVC Resistor high temperature while braking mode of locomotive

BUR:

None

HMI:

None

4.2 Adaptations and corrected errors

CCUO:

None

CCON:

None

BUR:

None

HMI:

None

4.3 Known problems

CCUO:

None

CCON:

None

BUR:

None

HMI:

None.

| | | | | |
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5. Dependencies

5.1 Compatibility to earlier software releases

TCMS Software:

Compatible with earlier release

CCCON/ BUR:

Compatible with earlier release

HMI4G:

New Operating system file name as “hmi-o-btroq_new_sw_kernel.tar” to be downloaded with application

5.2 Hardware dependencies

The software can be used on all WAG9, WAG9H, WAP7 locomotives with the Bombardier Propulsion set equipment. Locomotive configuration shall need to set from Driver Display unit correctly as per Locomotive type.

There are no other known hardware dependencies.

6. High Level Summary of Software Versions

| Device | Software_Package_Baseline_1.3.8.5 Version |
|-----------|-------------------------------------------|
| CCUO1 | 1.6.6.0 |
| CCUO2 | 1.6.6.0 |
| TCNGW | 0.1.0.1 |
| DCUL/SPIF | 1.0.2.9 |
| DCUM | 1.0.2.9 |
| HMI4G | 2.5.5.0 |
| BUR1 | 1.2.9.3 |
| BUR2 | 1.2.9.6 |
| BUR3 | 1.2.9.1 |

Table 4: Software Versions of Baseline 1.3.8.5

| | | | | |
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7. Version information for Software_Package_Baseline_1.3.8.5 (419W02BT)

7.1 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 | Version |
|----------------|------------------|------------------------|----------|
| CCUO1 | DL2-standard | VCU-C Operating System | 3.23.1.1 |
| CCUO1 | Cfg | Ccuo_blcfg[c] | 1.0.0.1 |
| CCUO1 | AP | Software Application | 1.6.6.0 |

Table 5: CCUO1 Base Software Package

| Used on Device | Application type | Application name | Version |
|----------------|------------------|------------------------|----------|
| CCUO2 | DL2-standard | VCU-C Operating System | 3.23.1.1 |
| CCUO2 | Cfg | Ccuo_blcfg[c] | 1.0.0.1 |
| CCUO2 | AP | Software Application | 1.6.6.0 |

Table 6: CCUO2 Base Software Package

| Used on Device | Application type | Application name | Version |
|----------------|------------------|------------------------|----------|
| TCNGW | DL2-standard | TCNGW Operating System | 3.10.0.3 |
| TCNGW | Cfg | tcngw_blcfg | 1.0.0.1 |
| TCNGW | AP | Software Application | 0.1.0.1 |

Table 7: TCNGW Base Software package

| | | | | |
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7.2 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 | Version |
|----------------|------------------|--------------------------|----------|
| DCU2L_SPIFn | OS | DCU2 Operating System | 3.16.1.2 |
| DCU2L_SPIFn | OS Cfg | Blcfg-DCU2_ix_V2 2.0.0.0 | 2.0.0.0 |
| DCU2L_SPIFn | AP | Software Application | 1.0.2.9 |
| DCU2_Mn | OS | DCU2 Operating System | 3.16.1.2 |
| DCU2_Mn | OS Cfg | Blcfg-DCU2_ix_V2 2.0.0.0 | 2.0.0.0 |
| DCU2_Mn | AP | Software Application | 1.0.2.9 |

Table 9: CON processors application versions

7.3 HMI Software

| Device | Type | File name | Versions |
|--------|------|---------------------------------------|----------|
| HMI4G | Bin | new_sw_4G_2_5_5_0_19_June_2019.tar.gz | 2.5.5.0 |

Table 10: HMI Application Version.gz

| | | | | |
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7.4 BUR Software

| BUR | Version of the s/w (a.b.c.d) | Name of downloadable File | Size (Bytes) | Date (YYYY-MM-DD) | Time (HH24:MM:SS) |
|------|---------------------------------|------------------------------|-----------------|----------------------|----------------------|
| BUR1 | 1.2.9.3 (Hex 50D) | zins11293.elf | 119 KB | 2019-03-26 | 04:30 PM |
| BUR2 | 1.2.9.6 (Hex 510) | zins21296.elf | 119 KB | 2019-03-26 | 04:28 PM |
| BUR3 | 1.2.9.1 (Hex 50B) | zins31291.elf | 121 KB | 2019-03-26 | 03:11 PM |

Table 11: BUR-Diagnostics processors software Version

| Sr. No. | Details | BUR | Control Card Details | Version of the s/w (a.b.c.d) | Name of downloadable File | Size (Bytes) | Date (YYYY- MM-DD) | Time (HH24:MM:SS) |
|------------|--------------------------------------------------------------------------------|------|----------------------------|------------------------------------|---------------------------------|-----------------|--------------------------|----------------------|
| 1 | Software for Main Control Cards (2000-138, 2000-139 & 2000-140) | BUR1 | 2000-138 | Rev. R02 | HB138002.hex | 2446 KB | 2018-04-27 | 10:05 AM |
| | | BUR1 | 2000-139 | Rev. R02 | HB139002.hex | 2446 KB | 2018-04-27 | 10:14 AM |
| | | BUR2 | 2000-138 | Rev. R02 | HB238002.hex | 2446 KB | 2018-04-27 | 10:32 AM |
| | | BUR2 | 2000-139 | Rev. R02 | HB239002.hex | 2446 KB | 2018-04-27 | 10:37 AM |
| | | BUR3 | 2000-138 | Rev. R02 | HB338002.hex | 2446 KB | 2018-04-27 | 11:11 AM |
| | | BUR3 | 2000-139 | Rev. R02 | HB339002.hex | 2446 KB | 2018-04-27 | 11:18 AM |
| | | LVPS | 2000-140 | Rev. R02 | HBC40002.hex | 2446 KB | 2018-04-27 | 11:42 AM |

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

8. Revision History

| Rev. | Edited | Checked | Approved | Remark |
|------|-------------------------------|----------------------------|--------------------------------|--------|
| — | 2019-08-12 Tejeswar Nukala | 2019-08-13 Manoj Khetan | 2019-08-13 Kalpesh Devariya | -- |