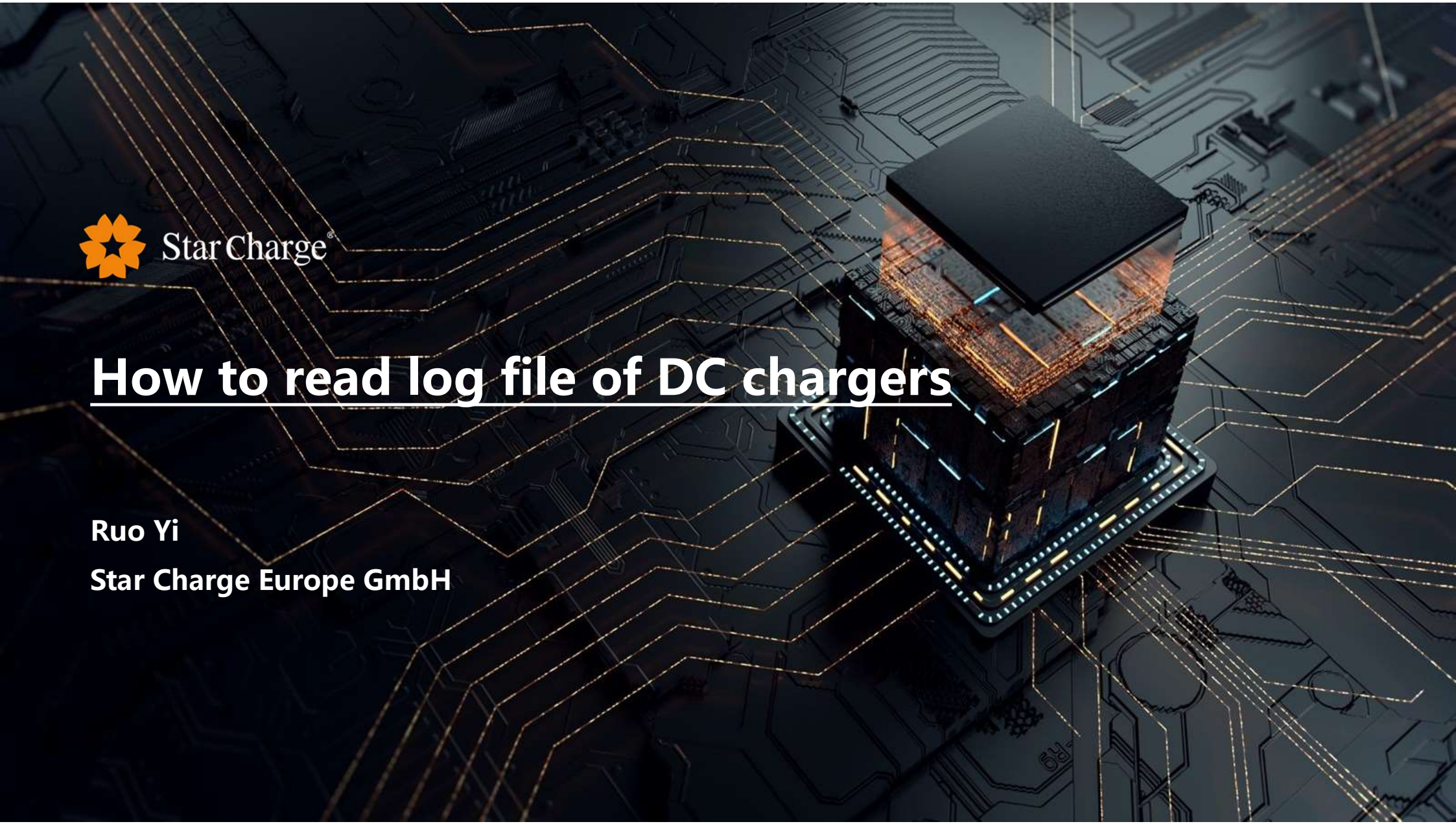


How to read log file of DC chargers

Ruo Yi

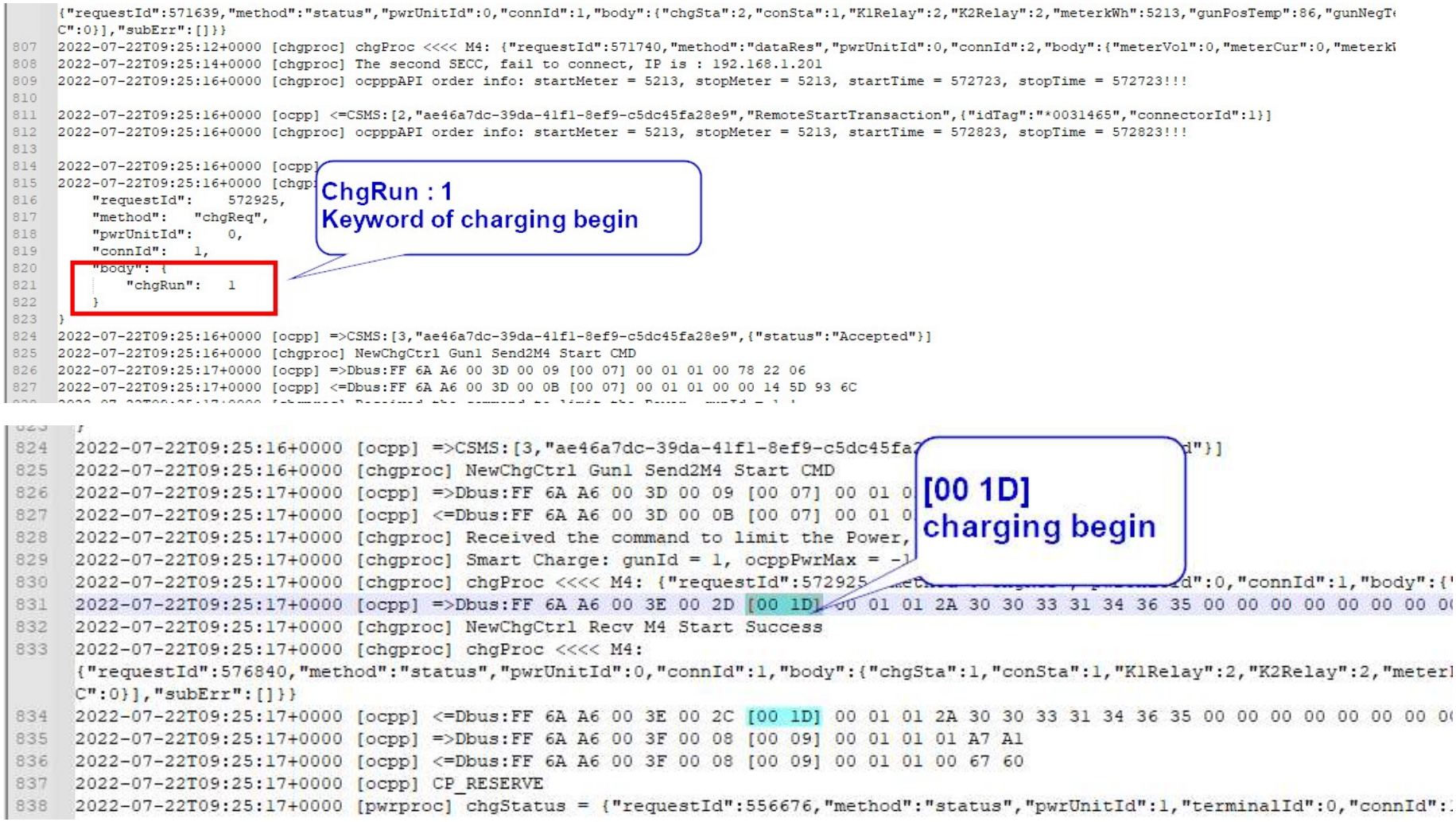
Star Charge Europe GmbH

Agenda

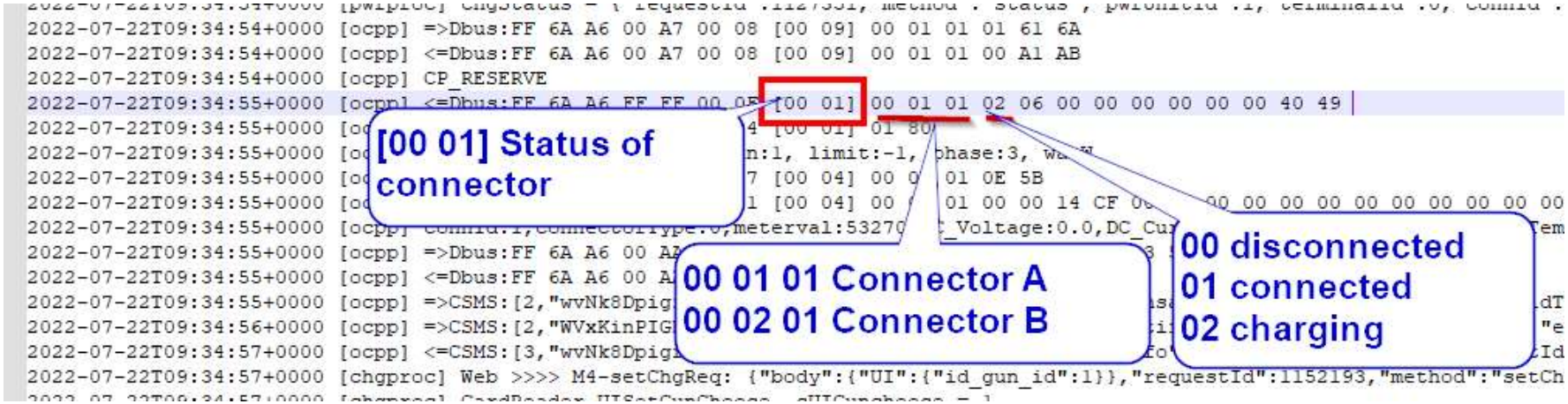
This training material is to explain some of the most importants keywords found in the DC charger logs, helping you understand the log data and the charger's operating status, as well as determine the next troubleshooting steps. If you would like a deeper understanding of log analysis, please contact us to access more advanced learning materials.

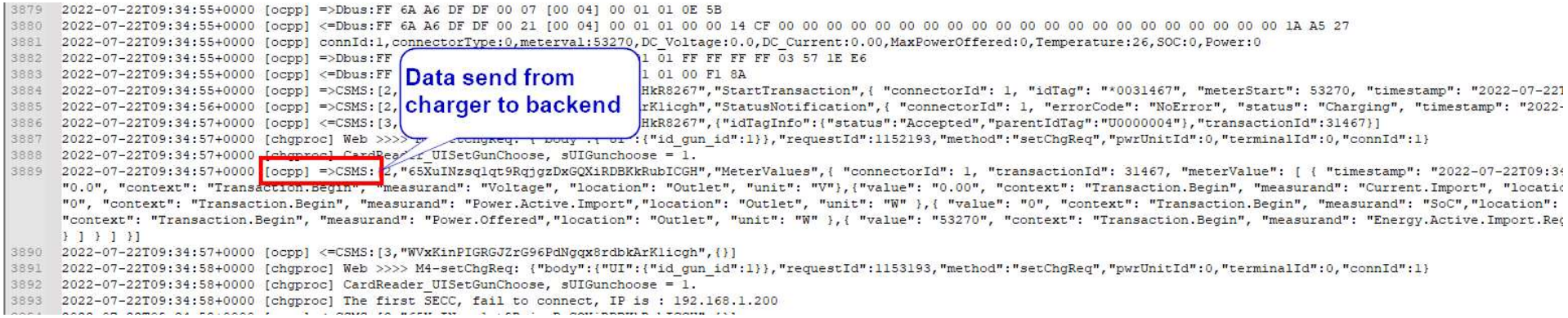
The following analysis is based on the log file from Titan V2 charger. This is valid for most DC charger products except Jupiter NewID / V2 and Venus V1.

Keywords in Titan/Nova charger log

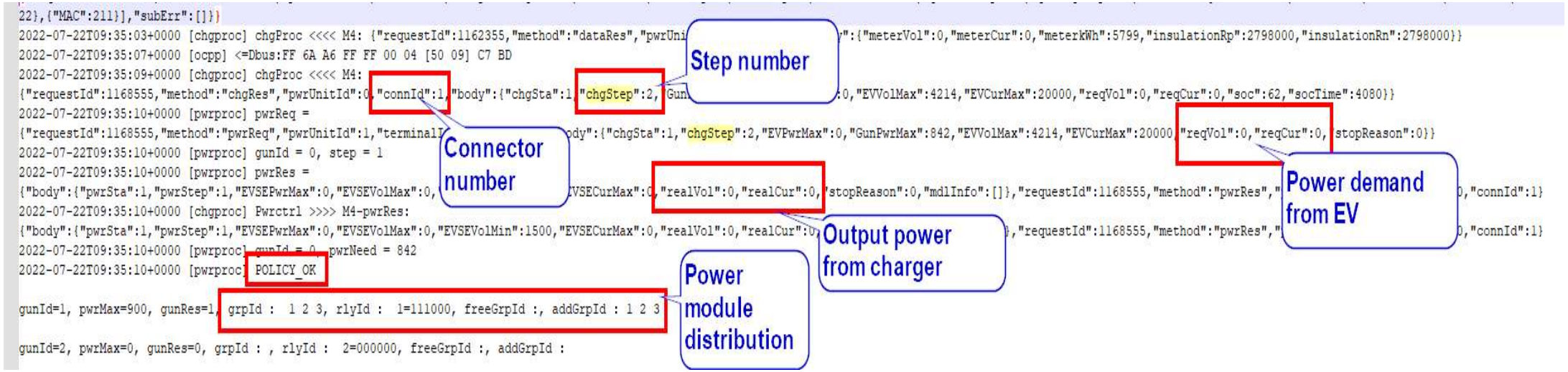


Keywords in Titan/Nova charger log





Keywords in Titan/Nova charger log

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2022-07-22T09:35:10+0000 [pwrproc] pwrRes =
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2022-07-22T09:35:10+0000 [pwrproc] POLICY_OK

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gunId=2, pwrMax=0, gunRes=0, grpId : , rlyId :  2=000000, freeGrpId :, addGrpId :
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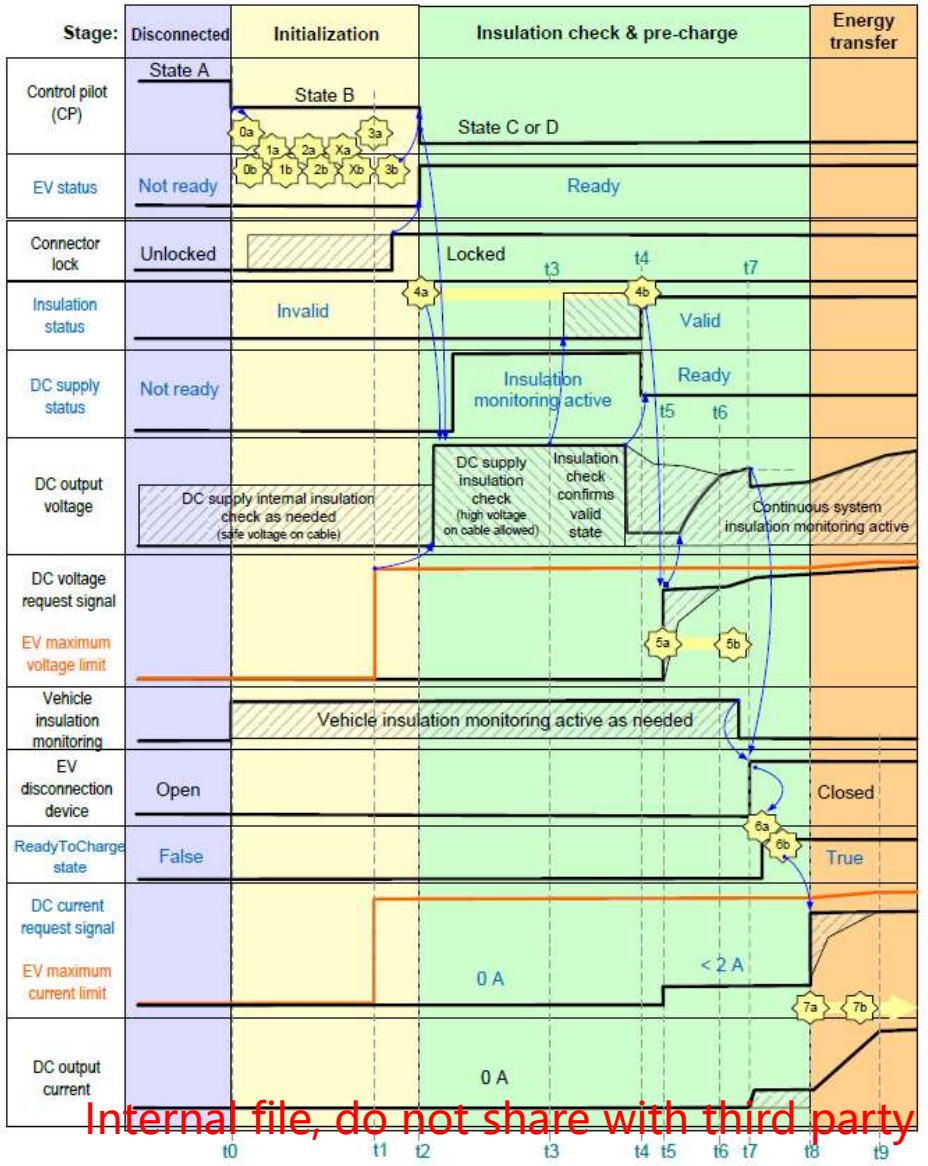
```

Keywords in Titan/Nova charger log

chgStep1	Session Setup
chgStep2	Information exchange between EV and Charger
chgStep3	Insulation test
chgStep4	Insulation test finished, discharge voltage
chgStep5	N/A
chgStep6	Pre-charge
chgStep7	Charging
chgStep8	Charging stop

Definition of charging process in IEC standard



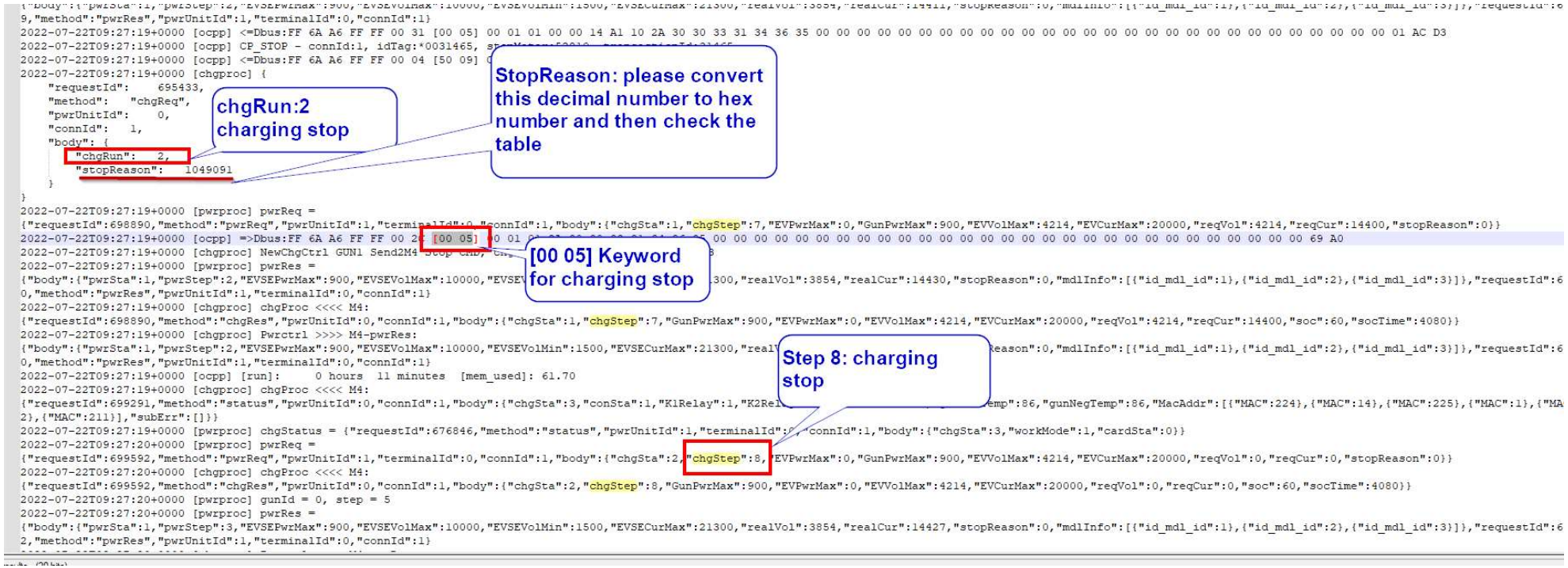
Definition of charging process in IEC standard

Star Charge®

Table CC.3 – Sequence description for normal start up

	Description
(t0)	– Vehicle connector is plugged into vehicle inlet which changes CP state from A to B.
(t0 → t1)	– High level communication (PLC) starts and handshaking with exchange of charging parameters takes place. – DC supply checks if d.c. output voltage is less than 60 V and terminates supply session if 60 V is exceeded.
(t1)	– EV sends its maximum limits (amongst other parameters) for d.c. supply output current and voltage with <3a>.
(t1 → t2)	– EV locks vehicle connector in its inlet. – Maximum values of the d.c. supply are responded to the EV with <3b>. – DC supply can check internal insulation as long as no voltage is applied to the connector. – If EV and d.c. supply are not compatible, then the vehicle will not go to Ready, and will transition to step t16 in the normal shutdown sequence.
(t2)	– EV changes CP state from B to C/D by closing S2 and sets EV status "Ready", which ends initialization phase.
(t2→t3)	– EV requests cable and insulation check by <4a> after connector lock has been confirmed. – DC supply starts checking HV system insulation and continuously reports insulation state by <4b>.
(t3)	– DC supply determines that insulation resistance of system is above 100 kΩ (cf. CC.4.1).
(t3→t4)	– After having successfully finished the insulation check, d.c. supply indicates status "Valid" with subsequent message <4b>
(t4)	– DC supply status changes to "Ready" with Cable Check Response <4b>
(t5)	– Start of pre-charge phase with EV sending Pre-Charge Request <5a>, which contains both requested DC current <2A (maximum inrush current according to CC.5.2) and requested d.c. voltage.
(t5→t6)	– DC supply adapts d.c. output voltage to requested value in <5a> while limiting current to maximum value of 2 A (maximum inrush current according to CC.6.1)
(t6)	– DC output voltage reaches requested voltage within tolerances given in 101.2.1.2.
(t6→t7)	– EV stops vehicle internal insulation monitoring, if any and necessary. – If necessary EV adapts requested d.c. voltage with cyclic messages <5a> in order to limit deviation of d.c. output voltage from EV battery voltage to less than 20 V (cf. Note in CC.5.1).
(t7)	– EV closes its disconnecting device after deviation of d.c. output voltage from EV battery voltage is less than 20 V.
(t7→t8)	– EV sends Power Delivery Request <6a> with ReadyToChargeState "True" to enable d.c. power supply output. – After disabling pre-charge circuit, if any, and switching on its power supply output, d.c. Supply gives feedback <6b> that it is ready for energy transfer.
(t8)	– EV sets d.c. current request with <7a> to start energy transfer phase.
(t8→t9)	– DC supply adapts its output current and voltage to the requested values. – DC supply reports its present output current and output voltage, its present current limit and voltage limit, and its present status back to the EV in message <7b>. NOTE EV may change its voltage request and current request even if output current has not reached the previous request.
(t9)	– DC output current reaches d.c. current request within delay time T_d defined in 101.2.1.3. (time span t9 – t8 = T_d, if one request has been made, bold line shows this situation)
(t9→)	– EV adapts d.c. current request and d.c. voltage request according to its charging/supply strategy with cyclic message <7a>.

Keywords in Titan/Nova charger log

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Europe office: Rugbyring 12, 65428 Russelsheim, Germany
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