

COMPASS DCS Status

Technical Board, May 2021



FCT Fundação para a Ciência e a Tecnologia

MINISTÉRIO DA CIÊNCIA, TECNOLOGIA E ENSINO SUPERIOR

Overview

DCS main distributed project

- CC7 / x86_64
- **WinCC OA 3.16 (patch 20201109 - recommended)**
- **JCOP Framework release 8.4.1**
- WinCC OA Oracle DB schema 8.9
- **OPC-UA Servers: CAEN, Wiener, CANOpen, IPBus, LXI**



New PC will be installed soon

DCS scattered projects

- Windows 7 64-bit
- **WinCC OA 3.16 (patch 20201109 - recommended)**
- OPC-DA Servers: Iseg, Wiener (Krakow), Schneider, ~~CAEN~~, ~~CANOpen~~

SLiC servers

- SLC5 / i386, custom kernel build options
- CAEN A1303 PCI CAENET controllers, driver v 1.7
- DIM servers for the remaining ~~CAEN SY403~~ and ~~SY527~~

CAEN

All new equipment has been installed



Cables labeled before exchange of crates and boards

Cables connected after checking crate and boards

- Cabling and mapping shall be checked and confirmed by detector experts

CAEN

CAEN OPC-UA server 0.9.7

- Installed and recommended version
- Supports Rwall CAEN VME8100

CERN JCOP fwCaen 8.4.3

- All COMPASS board models and variations (S/D/N/P) supported

OPC-DA to OPC-UA migration performed for most of the devices

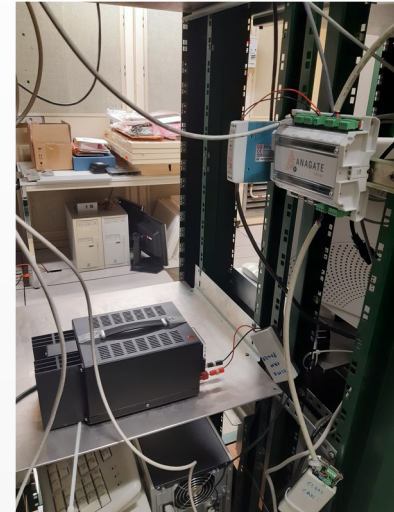
- Straw HV migration from Iseg still to CAEN still to be performed
 - Crate, boards and cable adapters already installed
- Some crates still don't have the correct network IP address
 - Need to be registered in the new COMPASS slowctrl network

ELMB

Installation of new Anagate CAN x4 interface

Migration from OPC-DA to OPC-UA

- CANOpen OPC-UA server 2.2.4-211
- Installation of new fwELMB component
- Update of ELMBs mapping



Wiener

Wiener OPC-UA server 1.0.0

- Control and monitoring of 3 VMEs and 1 PL508 LV

Wiener (Krakow) OPC-DA server

- Control and monitoring of devices not supported by Wiener OPC-UA

IPBus

IPBus OPC-UA server

- Compiled and installed
- Integration of TDC Veto H1
 - Monitoring only
 - Commands to be tested

TDC Veto H1

Firmware_id 18091513

Scaler	Value	Scaler	Value	Scaler	Value
scaler_00	255.00	scaler_10	243.00	scaler_20	281.00
scaler_01	255.00	scaler_11	248.00	scaler_21	292.00
scaler_02	256.00	scaler_12	251.00	scaler_22	280.00
scaler_03	248.00	scaler_13	265.00	scaler_23	289.00
scaler_04	250.00	scaler_14	166.00	scaler_24	305.00
scaler_05	249.00	scaler_15	245.00	scaler_25	308.00
scaler_06	266.00	scaler_16	253.00	scaler_26	307.00
scaler_07	259.00	scaler_17	251.00	scaler_27	301.00
scaler_08	247.00	scaler_18	278.00	scaler_28	278.00
scaler_09	244.00	scaler_19	245.00	scaler_29	315.00
Scaler	Value	Scaler	Value	Scaler	Value
scaler_30	272.00	scaler_40	5.00	scaler_50	4.00
scaler_31	274.00	scaler_41	4.00	scaler_51	4.00
scaler_32	5.00	scaler_42	4.00	scaler_52	4.00
scaler_33	5.00	scaler_43	4.00	scaler_53	4.00
scaler_34	5.00	scaler_44	4.00	scaler_54	4.00
scaler_35	4.00	scaler_45	4.00	scaler_55	4.00
scaler_36	5.00	scaler_46	5.00	scaler_56	4.00
scaler_37	4.00	scaler_47	4.00	scaler_57	4.00
scaler_38	5.00	scaler_48	4.00	scaler_58	4.00
scaler_39	4.00	scaler_49	4.00	scaler_59	4.00
Scaler	Value				
scaler_60	4.00				
scaler_61	4.00				
scaler_62	4.00				
scaler_63	4.00				
scaler_64	1.00				

LXI

LXI (LAN eXtensions for Instrumentation)

- Supported by Rohde & Schwarz (GEM) and Aim TTi LVs (Ptgt)
- CERN LXI OPC-UA TTi LV server available
 - Test with PTgt PL303P performed – polling rate ~15 seconds
- DIM Server for GEM LVs
 - Higher polling rate required – tested during last Dry Run

DIP

Request to monitor Gas and Water systems at 888

Mattermost

DCS notifications are now sent to Mattermost channels too

CERN SSO

Scada ID required to login in the DCS with your CERN account

- Most of COMPASS members have not yet obtained a Scada ID and/or requested me to add them in a specific detector group
 - <https://resources.web.cern.ch/resources/> --> List Services --> WinCC-OA Scada (Pvss) --> Settings
 - Members with assigned shifts will be added to the general shift/operator group

To-do list

Integration of

- Ptgt
- Silicons
- GEMs
- MWPC
- Gas and water systems at 888

Update

- Hv and Lv mappings
- Triggers and Veto information

Check

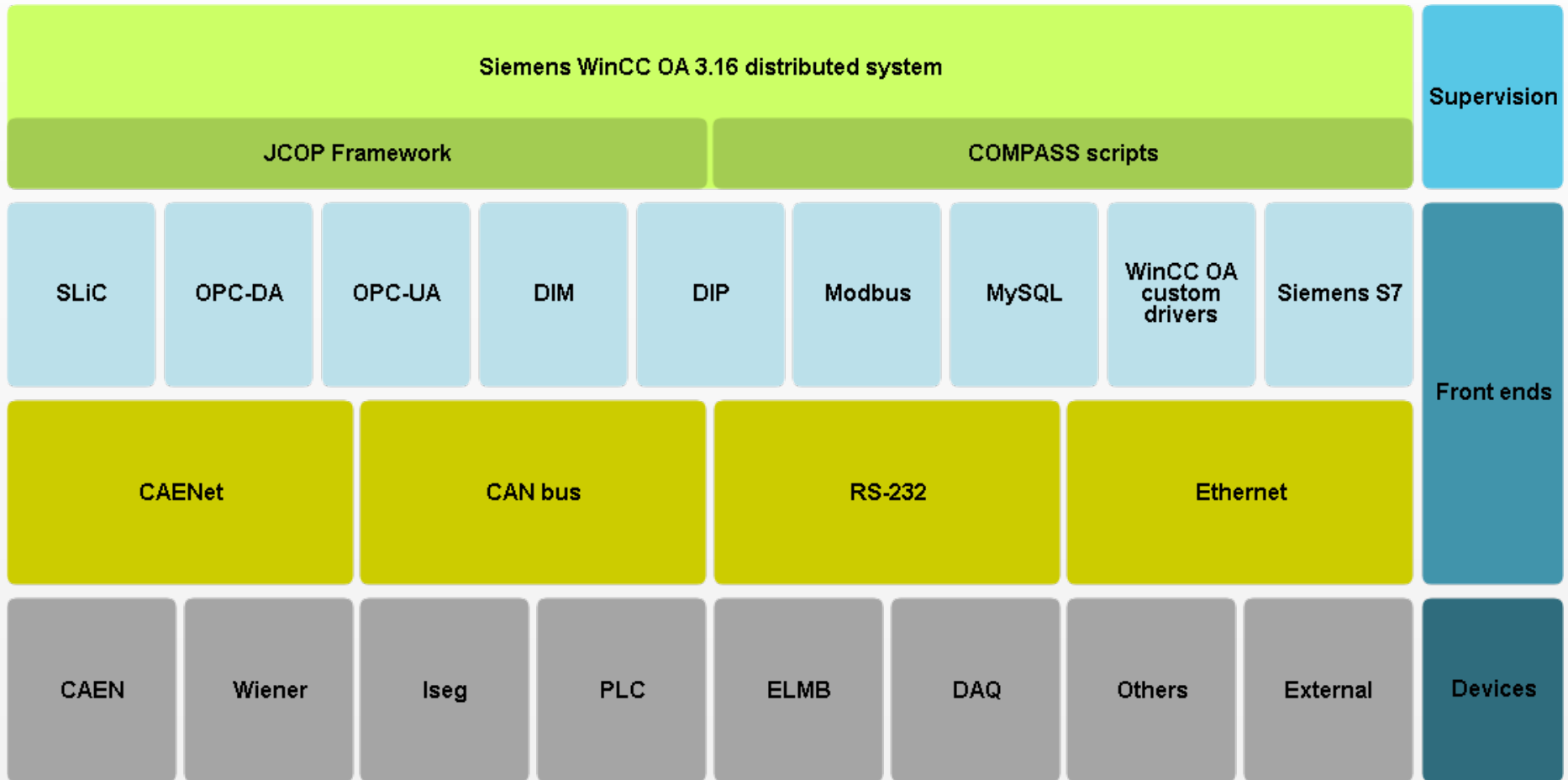
- Beam line, rates and radiation levels via DIP
- Bend6 and SM1 hall probes and SM2 field via NMR

Any other requests?

Thank you!

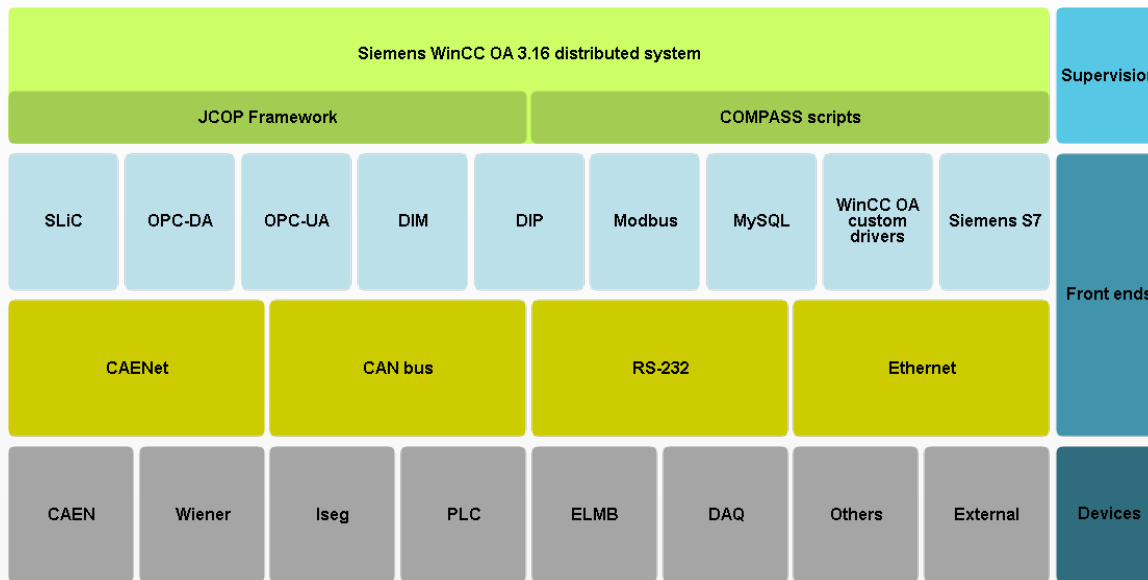
Extra slides

COMPASS DCS



2021

COMPASS DCS – Short term plans



2021

DCS hardware upgrade

WinCC OA upgrade

- 3.15 → 3.16
- Major upgrade

JCOP framework upgrade

OPC-DA is being phased out → move to OPC-UA

- COMPASS OPC-UA “compatible” equipment will be moved to OPC-UA
- Thanks to COMPASS effort older non-supported equipment will be decommissioned
- CANopen, CAEN, Iseg, Wiener and IPBus OPC-UA servers
 - Based on Quasar framework developed at CERN
 - <https://github.com/quasar-team/quasar/wiki>
 - Provides consistent implementations of OPC-UA servers

COMPASS DCS – Short term plans

Start transition from PCI-CAN to Ethernet-CAN interfaces

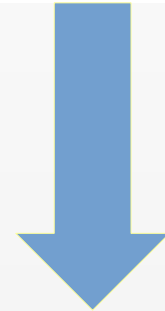
CAN Evolution

Today's Status

- Various CAN interfaces
 - ISEG: PEAK (PCI & USB) and SYSTEC(USB), Wiener: KVASER(PCI), SYSTEC(USB) ELMB: KVASER(PCI), SYSTEC(USB)
- Different ways to interface these gateways to the OPC Servers
- Newly supported and recommended Ethernet-CAN interface: ANAGATE based on Linux running on ARM CPUs

Plans

- Ongoing and LS2 plans (with OPC DA being phased out)
 - Homogenize the CAN hardware and software across CERN to facilitate installation, maintenance and support
 - Drop of the support of the Wrappers (after OPC DA decommissioning)
 - ANAGATE: recommended solution for upgrade and new developments
 - SYSTEC will continue to be supported beyond LS2
- LS3 and beyond
 - Recommendations to JCOP to evaluate alternatives to CANbus for future detector electronics



Anagate X series

COMPASS DCS – Short term plans

Adaptation of COMPASS DCS to Physic Programmes and integration of new equipment

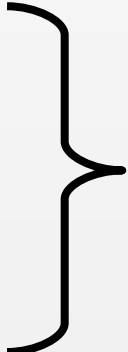
Logging of all user actions

LDAP/FreeIPA user authentication

Improve DAQ related monitoring

- Configuration DB, Detectors readout (ex: NINO discriminator boards work ongoing)

Additional monitoring of external systems

- Access control and monitoring
 - Beam
 - Accelerators status
 - Water
 - Piped Gas
- 
- To be defined