

# BAND 1:

## An example of ALMA modularity

Martin Tourneboeuf

August 24, 2021

1/ Band1 and its friends

2/ Execution

3/ Configuration

4/ Compilation

References

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References

**Disclaimer:** software presentation.

For hardware, see [frontend presentation by GSiringo](#)

# Band1

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Geo manufacture	Taiwan (ASIAA)
Frequency	40 GHz = 4 mm = 0.7 K
Field of view	100" (12m antenna)
Resolution (spatial)	0.1" (16km)

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# Frontend

CURRENT.ACSE

- Managers
- Computers
  - ant-sim-01 (ant-sim-01) [2220]
    - CONTROL(DV01)cppContainer [18404]
    - CONTROL(DV02)cppContainer [18409]
    - CONTROL(DV03)cppContainer [18408]
      - CONTROL(DV03) [24227]
      - CONTROL(DV03)mbManager [240458]
      - CONTROL(DV03)rayTrace [240950]
      - CONTROL(DV03)CMFR [239399]
      - CONTROL(DV03)OGC [240901]
      - CONTROL(DV03)TXBsp0 [240389]
      - CONTROL(DV03)TXBsp1 [240971]
      - CONTROL(DV03)TXBsp2 [240192]
      - CONTROL(DV03)TXBsp3 [240231]
      - CONTROL(DV03)LOG [240895]
      - CONTROL(DV03)frontEnd [231023]
      - CONTROL(DV03)frontEndACD [242167]
      - CONTROL(DV03)frontEndColdCart3 [242365]
      - CONTROL(DV03)frontEndColdCart4 [242348]
      - CONTROL(DV03)frontEndColdCart5 [242466]
      - CONTROL(DV03)frontEndColdCart6 [242441]
      - CONTROL(DV03)frontEndColdCart7 [242412]
      - CONTROL(DV03)frontEndColdCart8 [242528]
      - CONTROL(DV03)frontEndColdCart9 [242518]
      - CONTROL(DV03)frontEndCrystal [240222]
      - CONTROL(DV03)frontEndDigitalSwitch [242524]
      - CONTROL(DV03)frontEndEPR [241863]
      - CONTROL(DV03)frontEndEPR3 [240469]
      - CONTROL(DV03)frontEndErrorOrbit4 [240582]
      - CONTROL(DV03)frontEndErrorOrbit5 [240565]
      - CONTROL(DV03)frontEndErrorOrbit6 [240541]
      - CONTROL(DV03)frontEndErrorOrbit7 [240500]
      - CONTROL(DV03)frontEndErrorOrbit8 [240630]
      - CONTROL(DV03)frontEndErrorOrbit9 [240622]
      - CONTROL(DV03)frontEndWCA3 [242122]
      - CONTROL(DV03)frontEndWCA4 [242363]
      - CONTROL(DV03)frontEndWCA5 [242364]
      - CONTROL(DV03)frontEndWCA6 [242376]
      - CONTROL(DV03)frontEndWCA7 [242308]
      - CONTROL(DV03)frontEndWCA8 [242302]
      - CONTROL(DV03)frontEndWCA9 [242318]
      - CONTROL(DV03)holoDS [242112]
      - CONTROL(DV03)holoRx [239195]
      - CONTROL(DV03)Phs0 [241116]
      - CONTROL(DV03)Phs1 [241152]
      - CONTROL(DV03)Q2Bsp0 [240791]
      - CONTROL(DV03)Q2Bsp1 [240759]
      - CONTROL(DV03)Q2Bsp2 [240725]
      - CONTROL(DV03)Q2Bsp3 [240697]
      - CONTROL(DV03)ORR [241375]
      - CONTROL(DV03)MONITOR\_COLLECTOR [239154]
      - CONTROL(DV03)Mount [240831]
      - CONTROL(DV03)OpticalTelescope [239275]
      - CONTROL(DV03)PSA [241544]

Ref: Presentation on Alma frontend by GSiringo

Hardware Inventories

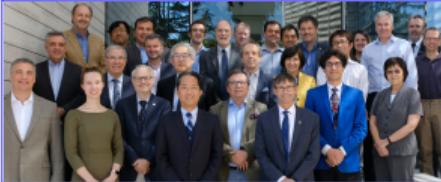
- Name
- CURRENT.ACSE
  - Array
  - Cross Polarization Delays
  - Antenna
  - AOSTiming
  - CentralLO
  - FrontEnd
  - Holography Tower
  - Pad
  - PhotonicReference
  - WeatherStationController
  - Assemblies
    - ACD
    - CMFR
    - ColdCart1
    - ColdCart2

Hardware Startups

Name	Started
CURRENT.ACSE	
antenna	
STARTUP-16Ant	
STARTUP-ALL	
Antenna	
CM01	
CM02	
FrontEnd	
ACD	
ColdCart1	
ColdCart2	
ColdCart3	
ColdCart4	
ColdCart5	
ColdCart6	
ColdCart7	
ColdCart8	



# Friends



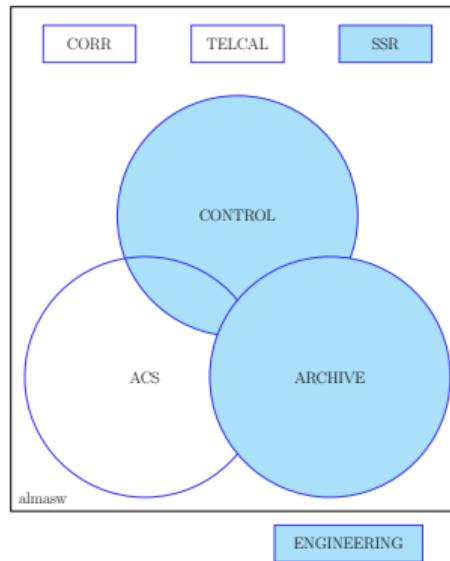
AHales

OMC

SCIENCE



MRadiszc



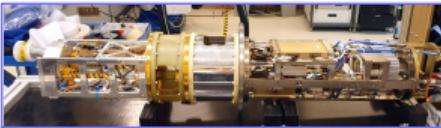
AHirota



HYatagai



Mtourneb



GSiringo

Ref: ICT-18986: Band1 IRM master ticket

# Friends



OMC

SCIENCE



AHales



MRadiszc



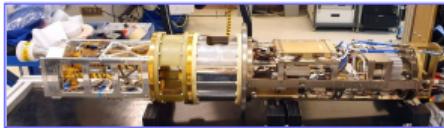
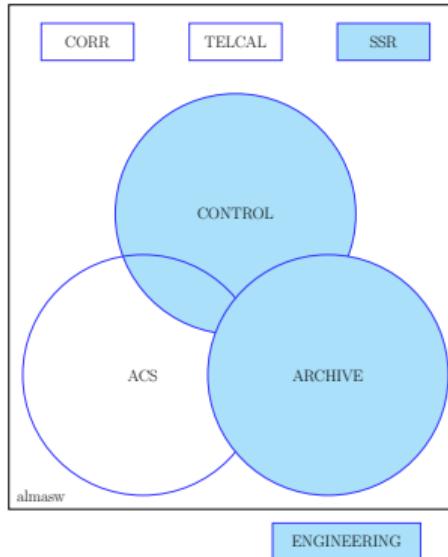
AHirosa



HYatagai



Mtourneb



GSiringo

- Subsidiarity principle
- Fail fast: faster with hardware and software operational
- Alma software turns on CONTROL and CORR.  
But is **not** in the data channel between antenna receiver and correlator.  
=> Not real time, not possible to build IP stack at 40Ghz.
- Vertical modularity

Ref: ICT-18986: Band1 IRM master ticket

1/ Band1 and its friends

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References

**Note:** Install ripgrep

# Turn on B1: Do it your way!

## 1. Band checkout (runOMC)

Operations Monitoring and Control - almaop@gne

Session View Debug Devices **Act** Alma **OpServer** Msg Memory RigsQueue

Alma Array1-BLC Antenna Status Scheduler

Interactive Array1-BLC

Projects P. I.

CSV	UID	Code	Name	Version	Status	State	Executive	P. I.
<input checked="" type="checkbox"/>	uid://A002/x027e95/x33	0000.2.00359.CSV	Band Checkout	0	uid://A001.../CSVReady	EU	Neil Phillips	
<input checked="" type="checkbox"/>	uid://A001/x13d/x65	0000.2.00379.CSV	Band Checkout SECOne...	0	uid://A001.../CSVReady	EU	Neil Phillips	
<input checked="" type="checkbox"/>	uid://A001/x2e6e/x72	0000.3.00000.CSV	SECOne Calibration	0	uid://A001.../CSVReady	EU	Neil Phillips	

Showing 54 projects of 5483

SchedBlocks

CSV	UID	Name	State	Status
<input checked="" type="checkbox"/>	uid://A001/x33/x8e3	Band 5, 6, 9	CSVReady	uid://A001/x33/x706
<input checked="" type="checkbox"/>	uid://A002/x027e95/x35	Band 1	CSVReady	uid://A002/x07e95/x39

Showing 92 SchedBlocks

SchedBlocks

CSV	UID	Name	State	Status
<input checked="" type="checkbox"/>	uid://A001/x15...	Band_1	CSVReady	uid://A001/...

# Turn on B1: Do it your way!

## 1. Band checkout (runOMC)

The screenshot shows the OMC interface for the Interactive Array1-BLC. The top navigation bar includes tabs for Session, View, Debug, Devices, Actv, Alma (selected), OptServer, Mng, Memory, RjtgQueue, and EDCB. Below the tabs are buttons for Antenna Status and Scheduler.

**Interactive Array1-BLC**

**Projects**

CSV	UID	Code	Name	Version	Status	State	Executive	P. I.
<input checked="" type="checkbox"/>	uid://A002/x027e95/x33	0000.0.00359.CSV	Band Checkout	0	uid://A001.../CSVReady	EU	Neil Phillips	
<input checked="" type="checkbox"/>	uid://A001/x13d/x65	0000.0.00379.CSV	Band Checkout SECON...	0	uid://A001.../CSVReady	EU	Neil Phillips	
<input checked="" type="checkbox"/>	uid://A001/x027e95/x33	0000.0.00359.CSV	Band 1, 3, 5, 7, 9 calibration	0	uid://A001.../CSVReady	EU	Neil Phillips	

Showing 34 projects of 3483

**SchedBlocks**

CSV	UID	Name	State	Status
<input checked="" type="checkbox"/>	uid://A001/x027e95/x33	Band 5, 6, 8	CSVReady	uid://A001/x13d/x706
<input checked="" type="checkbox"/>	uid://A002/x027e95/x33	Band 1	CSVReady	uid://A002/x027e95/x33

Showing 92 SchedBlocks

**SchedBlocks**

CSV	UID	Name	State	Status
<input checked="" type="checkbox"/>	uid://A001/x15...	Band_1	CSVReady	uid://A001/...

## 2. Radio setup (bash)

```
radioSetup.py -b 1,3 -y Array1-BLC
```

# Turn on B1: Do it your way!

## 1. Band checkout (runOMC)

CSV	UID	Name	State	Status
<input checked="" type="checkbox"/>	uid://A002/x007e95/x33	Band Checkout	0	uid://A001... CSVReady
<input checked="" type="checkbox"/>	uid://A001/x13/x05	Band Checkout SECON...	0	uid://A001... CSVReady
<input checked="" type="checkbox"/>	uid://A001/x007e95/x35	Band 3	0	uid://A001... CSVReady

CSV	UID	Name	State	Status
<input checked="" type="checkbox"/>	uid://A001/x03/x15...	Band 5, 6, 9	CSVReady	uid://A001/x13/x706
<input checked="" type="checkbox"/>	uid://A002/x007e95/x35	Band 3	CSVReady	uid://A002/x07e95/x39

SchedBlocks				
CSV	UID	Name	State	Status
<input checked="" type="checkbox"/>	uid://A001/x03/x15...	Band_1	CSVReady	uid://A001/...

## 2. Radio setup (bash)

```
radioSetup.py -b 1,3 -y Array1-BLC
```

## 3. Power up band (startCCL)

```
from CCL.FrontEnd import FrontEnd  
FrontEnd('DV25').powerUpBand( \  
    FrontEnd.Band.ALMA_RB_03)
```

# Turn on B1: Do it your way!

## 1. Band checkout (runOMC)

CSV	UID	Name	State	Status
<input checked="" type="checkbox"/>	uid://A001/X017e95/X33	Band Checkout	0	uid://A001... CSVReady EU
<input checked="" type="checkbox"/>	uid://A001/X13d/X05	0000.5.00379.CSV	0	uid://A001... CSVReady EU
<input checked="" type="checkbox"/>	uid://A001/X007e95/X35	Band 3, mmrrr.CSV	0	uid://A001... CSVReady EU

CSV	UID	Name	State	Status
<input checked="" type="checkbox"/>	uid://A001/X017e95/X33	Band 5, 6, 9	CSVReady	uid://A001/X13d/X706
<input checked="" type="checkbox"/>	uid://A001/X007e95/X35	Band 3	CSVReady	uid://A001/X07e95/X39

CSV	UID	Name	State	Status
<input checked="" type="checkbox"/>	uid://A001/X15...	Band_1	CSVReady	uid://A001/...

## 2. Radio setup (bash)

```
radioSetup.py -b 1,3 -y Array1-BLC
```

## 3. Power up band (startCCL)

```
from CCL.FrontEnd import FrontEnd  
FrontEnd('DV25').powerUpBand( \  
    FrontEnd.Band.ALMA_RB_03)
```

## 4. Turn on device (startCCL)

```
turn_on(ColdCart1('DV25'))
```

# Turn on B1: Do it your way!

## 1. Band checkout (runOMC)

CSV	UID	Code	Name	Version	Status	State	Executive	P. I.
<input checked="" type="checkbox"/>	uid://A002/x007e95/x33	0000.0.00359.CSV	Band Checkout	0	uid://A001.../CSVReady	EU	Neil Phillips	
<input checked="" type="checkbox"/>	uid://A001/x13d/x05	0000.0.00379.CSV	Band Check out SECOn...	0	uid://A001.../CSVReady	EU	Neil Phillips	
<input checked="" type="checkbox"/>	uid://A001/x007e95/x35	0000.0.00399.CSV	Band 1 calibration	0	uid://A001.../CSVReady	EU	Neil Phillips	

SchedBlocks	CSV	UID	Name	State	Status
<input checked="" type="checkbox"/>	uid://A001/x033/x083	Band 5, 6, 9	CSVReady	uid://A001/x13d/x706	
<input checked="" type="checkbox"/>	uid://A002/x007e95/x35	Band 1	CSVReady	uid://A002/x007e95/x39	

SchedLocks	CSV	UID	Name	State	Status
<input checked="" type="checkbox"/>	uid://A001/x15...	Band_1	CSVReady	uid://A001/...	

## 2. Radio setup (bash)

```
radioSetup.py -b 1,3 -y Array1-BLC
```

## 3. Power up band (startCCL)

```
from CCL.FrontEnd import FrontEnd  
FrontEnd('DV25').powerUpBand( \  
    FrontEnd.Band.ALMA_RB_03)
```

## 4. Turn on device (startCCL)

```
turn_on(ColdCart1('DV25'))
```

## 5. Start hardware (startCCL)

```
cc = ColdCart1('DV25')  
cc.getHwState()  
cc.hwConfigure()  
cc.hwInitialize()  
cc.hwOperational()
```

Ref: vim ~/AlmaSw/CONTROL/Common/ControlDevice/src/CCL/HardwareDevice.py # or  
from CCL.HardwareDevice import HardwareDevice; HardwareDevice?

# Communicate with B1: Do it your way!

## 1. Run Observation (runOMC)

Scheduler

Dynamic Array18-BLC

Projects P. I. Filter Reset

CSV	UID	Code *	Name *	Versine	Status	Stat	Exp.
[x]	00000.00011	CBV	Observation test	0.29	idle	CS	EU
[x]	00000.000148	CSV	24 Amplitude	0.29	idle	CS	EU
[x]	00000.000171	CBV	24 Amplitude	0.3	idle	CS	EU
[x]	00000.000188	CBV	24 Amplitude	0.3	idle	CS	EU
[x]	00000.000203	CBV	Focus 598 A	0	idle	CS	EU
[x]	00000.000203	CBV	Focus 598 BL	0	idle	CS	EU
[x]	00000.000203	CBV	Grid 598	0	idle	CS	EU
[x]	00000.000227	CBV	Imaging point	0	idle	CS	EU
[x]	00000.000228	CBV	Visual source	0	idle	CS	EU
[x]	00000.000234	CBV	Optical	0.3	idle	CS	EU
[x]	00000.000234	CBV	Focus 598 BL	0	idle	CS	EU
[x]	00000.000271	CBV	Focus 598	0	idle	CS	EU

Showing 12 projects of 3470

SchedBlocks

CSV	UID	Name *	State	Status
[x]	Lab(00001.015..	Focus_Band_1_2_V_X	CSReady	idle (V0001..
[x]	Lab(00001.015..	Focus_Band_1_2_V_Y	CSReady	idle (V0001..
[x]	Lab(00001.020..	Focus_Band_1_2_V_X	CSReady	idle (V0001..
[x]	Lab(00001.020..	Focus_Band_1_2_V_Y	CSReady	idle (V0001..
[x]	Lab(00001.051..	Focus_Band_1_2	CSReady	idle (V0001..
[x]	Lab(00001.051..	Focus_Band_1_2_V_X	CSReady	idle (V0001..
[x]	Lab(00001.051..	Focus_Band_1_2_V_Y	CSReady	idle (V0001..
[x]	Lab(00001.055..	Focus_Band_1_2_V_X	CSReady	idle (V0001..
[x]	Lab(00001.055..	Focus_Band_1_2_V_Y	CSReady	idle (V0001..
[x]	Lab(00001.056..	Focus_Band_1_2_V_X	CSReady	idle (V0001..
[x]	Lab(00001.056..	Focus_Band_1_2_V_Y	CSReady	idle (V0001..
[x]	Lab(00001.078..	Focus_Band_1_2_V_X	CSReady	idle (V0001..
[x]	Lab(00001.078..	Focus_Band_1_2_V_Y	CSReady	idle (V0001..
[x]	Lab(00001.200..	Focus_Band_1_2_V_X	CSReady	idle (V0001..
[x]	Lab(00001.200..	Focus_Band_1_2_V_Y	CSReady	idle (V0001..
[x]	Lab(00001.207..	Focus_Band_1_2_V_X	CSReady	idle (V0001..
[x]	Lab(00001.207..	Focus_Band_1_2_V_Y	CSReady	idle (V0001..
[x]	Lab(00002.048..	Focus_Band_1_2_V_X	CSReady	idle (V0001..
[x]	Lab(00002.048..	Focus_Band_1_2_V_Y	CSReady	idle (V0001..
[x]	Lab(00002.049..	Focus_Band_1_2_V_X	CSReady	idle (V0001..
[x]	Lab(00002.049..	Focus_Band_1_2_V_Y	CSReady	idle (V0001..
[x]	Lab(00002.050..	Focus_Band_1_2_V_X	CSRunning	idle (V0001..

Showing 20 SchedBlocks

Update

X

# Communicate with B1: Do it your way!

## 1. Run Observation (runOMC)

The screenshot shows the 'Scheduler' interface for 'Dynamic Array 18-BLC'. It displays three main sections: 'Pending Executions', 'Current Executions', and 'Completed Executions'.  
**Pending Executions:** Shows tasks like 'P0 U0P\_1, TiltExtNasSt, P0' and 'u0P\_0, u0N\_0, u0S\_0'.  
**Current Executions:** Shows tasks like 'P0U\_0, TiltExtNasSt, P0' and 'Step 5B'.  
**Completed Executions:** Shows a list of completed tasks with details such as 'End(2018.01.15., Focus\_Band\_1, V, X, Y)' and 'Status: u0S(0001)'.  
At the bottom, there are buttons for 'Start Queue', 'Stop Queue', and 'Destroy Array'.

## 2. Click M&C point (objexp)

The screenshot shows the 'Object Explorer' interface for 'CONTROLLER(frontEndCardCart1)'. It lists various objects and their operations.  
**Operations:** A list of methods including:  
- GET\_MAGNITUDE\_CELSIUS\_OP (<clasp>)  
- GET\_MAJOR\_REV\_LVL (<clasp>)  
- GET\_MINOR\_REV\_LEVEL (<clasp>)  
- GET\_P0\_SOIL1\_LNA1\_GATE\_VOLTAGE (<clasp>)  
- GET\_P0\_SOIL1\_LNA1\_DRAIN\_VOLTAGE (<clasp>)  
- GET\_P0\_SOIL1\_LNA1\_DRAIN\_CURRENT (<clasp>)  
- GET\_P0\_SOIL1\_LNA1\_GATE\_VOLTAGE (<clasp>)  
- GET\_P0\_SOIL1\_LNA2\_GATE\_VOLTAGE (<clasp>)  
- GET\_P0\_SOIL1\_LNA2\_DRAIN\_VOLTAGE (<clasp>)  
- GET\_P0\_SOIL1\_LNA2\_DRAIN\_CURRENT (<clasp>)  
- GET\_P0\_SOIL1\_LNA2\_GATE\_VOLTAGE (<clasp>)  
- GET\_P0\_SOIL1\_LNA2\_DRAIN\_VOLTAGE (<clasp>)  
- GET\_P0\_SOIL1\_LNA2\_GATE\_VOLTAGE (<clasp>)  
  
**Messages:** A log of messages including:  
- Message: Initializing B12 engine. #use wait...  
- Message: Starting engine initial return.  
- Message: Obtained reference to 'Repository'.  
- Message: Obtained reference to 'Manager'.  
- Message: Querying root results.

# Communicate with B1: Do it your way!

## 1. Run Observation (runOMC)

The screenshot shows the 'Scheduler' and 'Pending Executions' sections of the Dynamic Array18-BLC interface. The Scheduler lists various tasks such as 'Focus 585 A', 'Focus 585 BL', 'Grid Scan', 'Vessel source', and 'Oscillate'. The Pending Executions section shows tasks like 'P0 U0P... TiltExtNasSt.CPV' and 'U0P... ThrustExtNasSt.CPV' with buttons for Promote, Demote, and Resave. The Completed Executions section lists completed tasks with details like 'Time' and 'Status'.

## 2. Click M&C point (objexp)

The screenshot shows the Object Explorer interface with the path 'ColdCart1 > CONTROL.DRIVER.frontEnd.ColdCart1'. It lists various operations such as 'GET\_MAGNITUDE\_CELLSUS\_OP', 'GET\_MAJOR\_REV\_LVL', 'GET\_MINOR\_REV\_LEVEL', 'GET\_P0\_S0L1\_LNA1\_GATE\_VOLTAGE', 'GET\_P0\_S0L1\_LNA1\_DRAIN\_VOLTAGE', and 'GET\_P0\_S0L1\_LNA2\_GATE\_VOLTAGE'. The 'GET\_P0\_S0L1\_LNA1\_DRAIN\_VOLTAGE' operation is highlighted with a blue selection bar. The bottom pane shows a message log with entries related to engine initialisation and timestamp values.

## 3. Call device control method (startCCL)

```
ColdCart1('DV25').GET_P0L1_LNA1_DRAIN_VOLTAGE()
```

# Communicate with B1: Do it your way!

## 1. Run Observation (runOMC)

The screenshot shows the OMC (Observation Management Console) interface. It has two main sections:

- Scheduler:** Displays a table of scheduled tasks. One task is highlighted: "Focus 598 A" with ID 0, UDI 0x0000000000000000, and a timestamp of 2016-03-22T10:59:59Z.
- Pending Executions:** Shows a list of pending tasks. One task is highlighted: "Focus 598 A" with ID 0, UDI 0x0000000000000000, and a timestamp of 2016-03-22T10:59:59Z.

## 2. Click M&C point (objexp)

The screenshot shows the objexp (Object Explorer) interface. It displays a tree structure of objects and their operations:

- Object:** CONTROL.DWRFrontEndColdCart1
- Operations:** A list of methods available for the object.

A specific method, `GET_P01_S01_LNA1_DRAIN_VOLTAGE`, is highlighted in blue. Below the tree, a message history window shows the following log entries:

```
[01-2013-03-22T10:59:59Z] Message: Initializing B12 engine...#use refl...
[01-2013-03-22T10:59:59Z] Message: Starting engine initial setup...
[01-2013-03-22T10:59:59Z] Message: Obtained reference to 'Repository'.
[01-2013-03-22T10:59:59Z] Message: Obtained reference to 'Manager'.
[01-2013-03-22T10:59:59Z] Message: Querying root module.
```

## 3. Call device control method (startCCL)

```
ColdCart1('DV25').GET_P01_S01_LNA1_DRAIN_VOLTAGE()
```

## 4. Send CAN command from ABM (startCCL)

```
from CCL.AmbManager import *; import struct
# Monitor: channel, device, RCA -> (data, time)
dt = AmbManager("DV25").monitor(1, 0x13, 0x40)
print(struct.unpack('8B', dt[0])) # len <= 8
```

1/ Band1 and its friends

2/ Execution

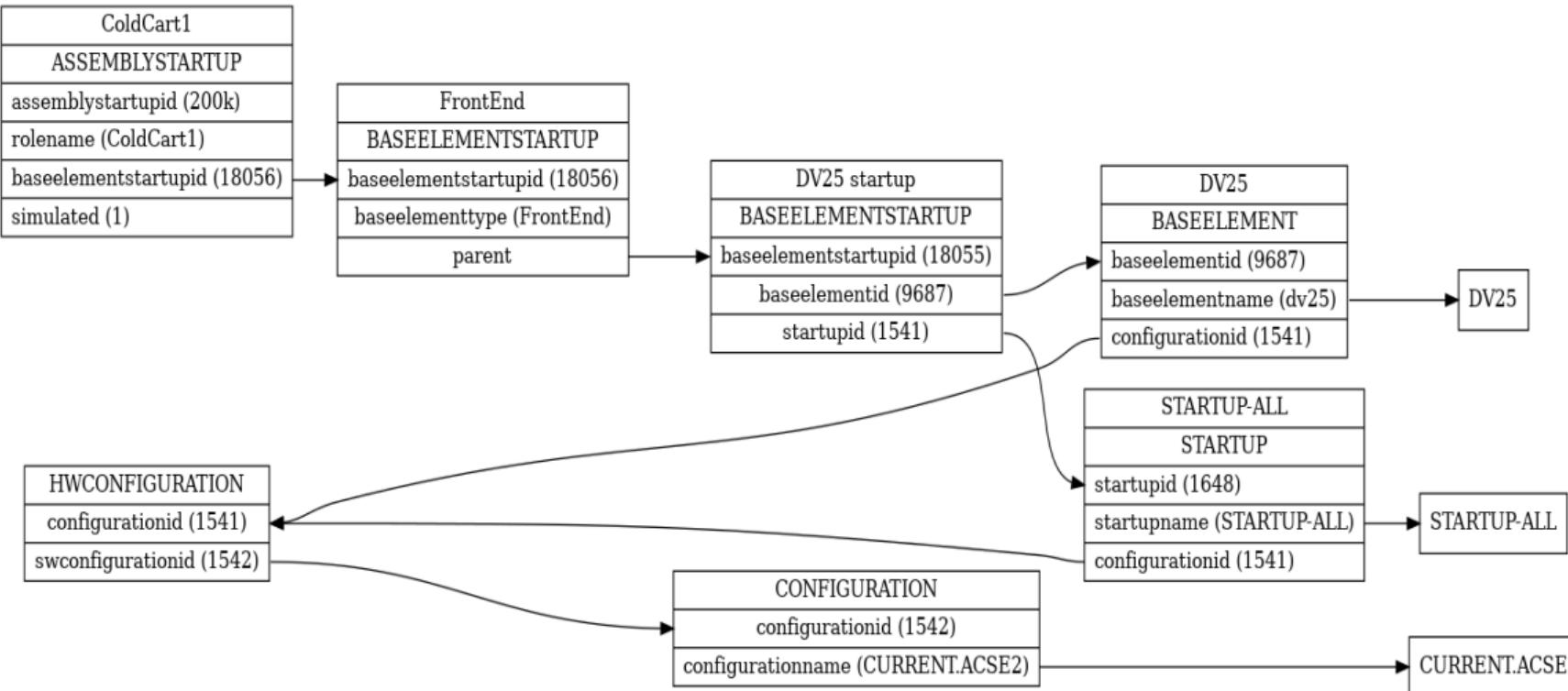
3/ Configuration

4/ Compilation

References

**Alias:** alias fr='find . | rg '  
alias fr='find . | grep -r '

# Device: TMCDB database model



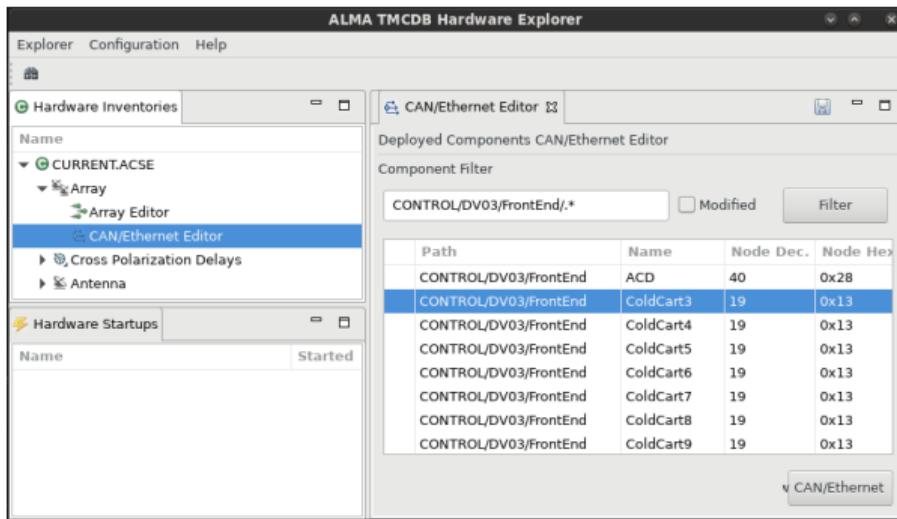
Ref: [How to add Band1 to database \(TMCDB\)](#)

# Device: Failure: CAN configuration

```
Creating node 0x13, s/n 0x65b0e5a10002b5dd, ColdCart1 device
[CONTROL/DV03/cppContainer-GL - ] Switched state of component CONTROL/DV03/FrontEnd/ColdCart1: NEW -> INITIALIZING
[CONTROL/DV03/cppContainer-GL - virtual void AmbDeviceImpl::initialize()] Life cycle error (type=28, code=0)
    UserErrorMessage="Cannot get, from the TMCDB, the CAN channel and node number needed by the CONTROL/DV03/FrontEnd/Col
[TMCDBAccess - getDefaultCanAddress] TMCDB error (type=100000, code=0) javaex.class="alma.TmcdbErrType.wrappers.AcsJtm
    UserErrorMessage="No default CAN address found for CONTROL/DV03/FrontEnd/ColdCart1"
[maci::LibraryManager - maci::LibraryManager::unload]
    Unloaded '/alma/ACS-2021AUG/ACSSW/lib/libColdCart1CompSimImpl.so'.
```

# Device: Failure: CAN configuration

```
Creating node 0x13, s/n 0x65b0e5a10002b5dd, ColdCart1 device
[CONTROL/DV03/cppContainer-GL - ] Switched state of component CONTROL/DV03/FrontEnd/ColdCart1: NEW -> INITIALIZING
[CONTROL/DV03/cppContainer-GL - virtual void AmbDeviceImpl::initialize()] Life cycle error (type=28, code=0)
    UserErrorMessage="Cannot get, from the TMCDB, the CAN channel and node number needed by the CONTROL/DV03/FrontEnd/Col
[TMCDBAccess - getDefaultCanAddress] TMCDB error (type=100000, code=0) javaex.class="alma.TmcdbErrType.wrappers.AcsJtm
    UserErrorMessage="No default CAN address found for CONTROL/DV03/FrontEnd/ColdCart1"
[maci::LibraryManager - maci::LibraryManager::unload]
    Unloaded '/alma/ACS-2021AUG/ACSSW/lib/libColdCart1CompSimImpl.so'.
```



# Device: Failure: CAN configuration

Creating node `0x13`, s/n `0x65b0e5a10002b5dd`, ColdCart1 device

[CONTROL/DV03/cppContainer-GL - ] Switched state of component CONTROL/DV03/FrontEnd/ColdCart1: NEW -> INITIALIZING  
[CONTROL/DV03/cppContainer-GL - virtual void AmbDeviceImpl::initialize()] Life cycle error (type=28, code=0)  
UserErrorMessage="Cannot get, from the TMCDB, the CAN channel and node number needed by the CONTROL/DV03/FrontEnd/Col  
[TMCDBAccess - getDefaultCanAddress] TMCDB error (type=100000, code=0) javaex.class="alma.TmcdbErrType.wrappers.AcsJtm  
UserErrorMessage="No default CAN address found for CONTROL/DV03/FrontEnd/ColdCart1"  
[maci::LibraryManager - maci::LibraryManager::unload]  
Unloaded '/alma/ACS-2021AUG/ACSSW/lib/libColdCart1CompSimImpl.so'.

ALMA TMCDB Hardware Explorer

Explorer Configuration Help

Hardware Inventories

Name

CURRENT.ACSE

Array

Array Editor

CAN/Ethernet Editor

Cross Polarization Delays

Antenna

Hardware Startups

Name Started

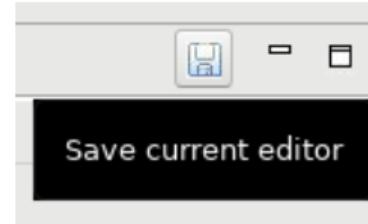
CAN/Ethernet Editor

Deployed Components CAN/Ethernet Editor

Component Filter

CONTROL/DV03/FrontEnd/\* Modified Filter

Path	Name	Node Dec.	Node Hex
CONTROL/DV03/FrontEnd	ACD	40	0x28
CONTROL/DV03/FrontEnd	ColdCart3	19	0x13
CONTROL/DV03/FrontEnd	ColdCart4	19	0x13
CONTROL/DV03/FrontEnd	ColdCart5	19	0x13
CONTROL/DV03/FrontEnd	ColdCart6	19	0x13
CONTROL/DV03/FrontEnd	ColdCart7	19	0x13
CONTROL/DV03/FrontEnd	ColdCart8	19	0x13
CONTROL/DV03/FrontEnd	ColdCart9	19	0x13



	CONTROL/DV03/FrontEnd	WCA8	19	0x13	1	false	not set	-1	not set	-1	-1.0	-1
	CONTROL/DV03/FrontEnd	WCA9	19	0x13	1	false	not set	-1	not set	-1	-1.0	-1
*	CONTROL/DV03/FrontEnd	ColdCart1	19	0x13	1	false	not set	-1	not set	-1	-1.0	-1
*	CONTROL/DV03/FrontEnd	WCA1	19	0x13	-1	false	not set	-1	not set	-1	-1.0	-1
+	CONTROL/DV03/FrontEnd	PowerDist1	0	0x0	-1	false	not set	-1	not set	-1	-1.0	-1

## Configuration point (assembly): Files

file: /alma/ste/config/TMCDB\_DATA/{101,113186802193399896}.xml

```
<?xml version='1.0' encoding='UTF-8'?>
<ConfigData>
    <ASSEMBLY value="ColdCart1"/>
    <!-- <CCACconfig value="0000" timestamp="2020-01-01T00:00:00"/> -->
    <!-- <ESN value="0000000000000000"/> -->
    <!-- <SN value="CCA1-01"/> -->
    <!-- <TempSensorOffsets Te0="0.00" Te1="0.00" Te2="0.00" Te3="0.00" -->
    <PreampParamsPol0Sb1 FreqL0="31.00E9"
        VD1="0.70" VD2="0.70" VD3="1.65"    <!-- VD4="1.40" VD5="1.50" -->
        ID1="3.04" ID2="4.04" ID3="7.02"    <!-- ID4="7.40" ID5="7.50" -->
        VG1="0.09" VG2="0.10" VG3="-0.20"   <!-- VG4="0.40" VG5="0.50" -->/>
    <PreampParamsPol1Sb1 FreqL0="31.00E9"
        VD1="0.67" VD2="0.89" VD3="1.48"    <!-- VD4="1.40" VD5="1.50" -->
        ID1="3.07" ID2="3.58" ID3="7.07"    <!-- ID4="7.40" ID5="7.50" -->
        VG1="0.14" VG2="0.12" VG3="-0.17"   <!-- VG4="0.40" VG5="0.50" -->/>
</ConfigData>
```

Ref: C9: ICT-17809: Track assembly changes Ref: B1:  
ICT-18566: Update FrontEnd software <- ICD" commit  
1e2863e31ed

# Configuration point (assembly): Failure

- **Game over**

"ColdCart1" is not appearing in the logs

The requested Component had not been already activated at request time  
The FrontEnd is in Shutdown. No operations allowed.

- **Bad assembly**

```
SerialNumber for device CONTROL/DA65/DTXBBpr0 has been
set to 0x734745ba0b87df55. # This comes at turn on CONTROL
Cannot get, from the TMCDB, the assembly data for
S/N: 734745ba0b87df55 # Warning -> Error
```

- **Bad baci**

```
Failed to read static data for 'CONTROL/DV03/FrontEnd/ColdCart7:POL1_SB2_LNA_ENA'
```

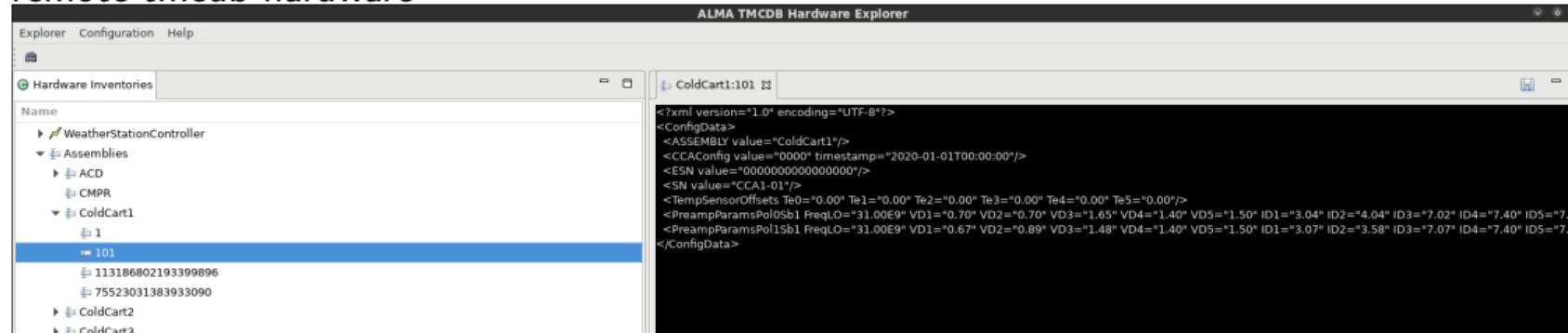
- **Harmless baci**

```
Field alma/CONTROL/DV03/FrontEnd/Cryostat/TCPIP_ADDRESS/
{archive_delta_percent,alarm_on,description} does not exist
```

# Configuration point (assembly): Locations

Those xml configuration files are in:

1. remote git repository “configurations”
2. local directory /alma/ste/config/TMCDB\_DATA
3. remote tmcdb-hardware



From git (1) to sql (3), run:

```
updateAssemblies -b C9 -f -v
```

Ref: How to add/update an xml assembly file  
Ref: Script to convert assembly files: C7 -> C9

## Monitor or control point (BACI)

```
# Push BACI: local build files -> remote database sql
# Or: -component CONTROL/DV25/FrontEnd/ColdCart1
MonitoringSyncTool -vv -c \
    -component_type IDL:alma/Control/ColdCart1:1.0 \
    -configuration CURRENT.ACSE2 \
    -logfile "$HOME/Test/log_ColdCart1_$(date).log"
```

1/ Band1 and its friends

2/ Execution

3/ Configuration

4/ Compilation

References

**Cmd:** rsync -av ~mtourneb/.local/ ~/local

**Cmd:** echo 'PATH=\$HOME/.local/bin:\$PATH' >> ~/.bashrc

**Note:** No Double Side Band en band1

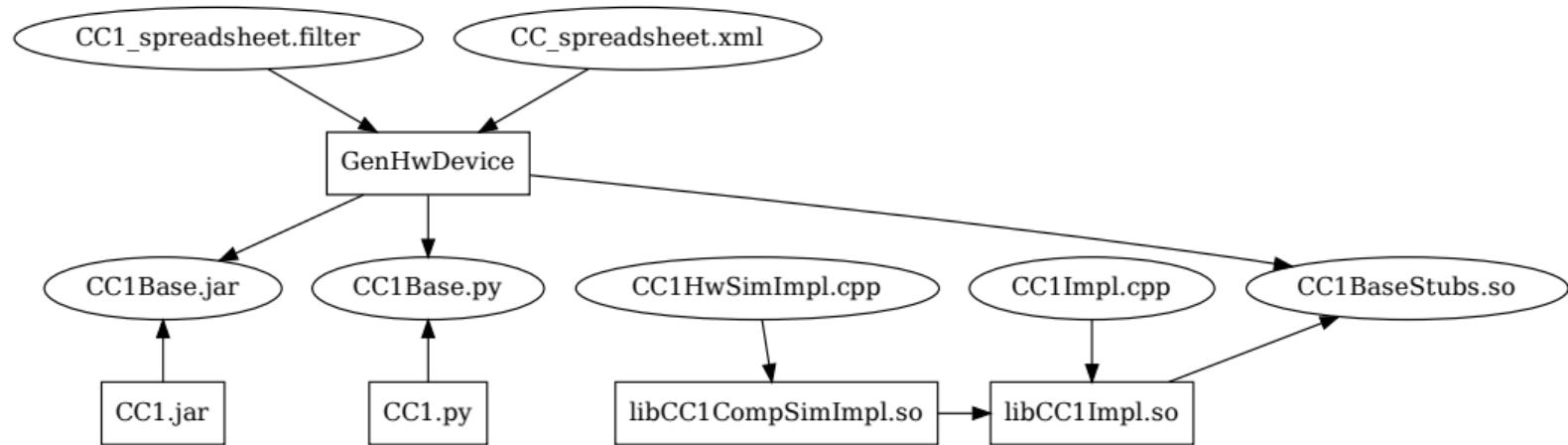
# Source code: list of BACI

A	B	C	D	H	Q	U
Assembly	Name	RCA	Raw Data Type	Data Units	Mode	Description
21 ColdCart	POL1_SB1_SIS_MAGNET_CURRENT	0x00430	float	ampere	startup	Get the SIS magnet current for Pol1 SB1
23 ColdCart	POL1_SB2_SIS_MAGNET_CURRENT	0x004B0	float	ampere	startup	Get the SIS magnet current for Pol1 SB2
24 ColdCart	POL0_SB1_LNA1_DRAIN_VOLTAGE	0x00040	float	volt	operational	Get the LNA St1 drain voltage for Pol0 SB1
25 ColdCart	POL0_SB2_LNA1_DRAIN_VOLTAGE	0x000C0	float	volt	operational	Get the LNA St1 drain voltage for Pol0 SB2
26 ColdCart	POL1_SB1_LNA1_DRAIN_VOLTAGE	0x00440	float	volt	operational	Get the LNA St1 drain voltage for Pol1 SB1

libreoffice ~/AlmaSw/CONTROL/Device/HardwareDevice/FrontEnd/FrontEnd/idl/ColdCart\_spreadsheet.xml

Ref: ICT-18566: Update FrontEnd software <- ICD" commit 1e2863e31ed

# From Source to library



1/ Band1 and its friends

2/ Execution

3/ Configuration

4/ Compilation

References

## References

- Jira [ICT-18986](#): C9: Band1 first use in production: IRM master ticket to track related projects (database, science ..)
- Review: [First Science 2009](#)
- Image: [News from Japan](#)
- Report: [Alma 2030](#)
- Images: [Alma band1](#)