ALICE TOF Shifters Instructions

ALICE TOF Team
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1. Foreword

Before to start a shift, you must be aware of:

- to know how to log on all the TOF machines (user and password for aldaqacr41, alitofon001, alitofsrv, alitofsm00…);
- to have access in the ALICE Counting Rooms (CR3 and CR4).

If not, ask an expert!!!

2. Shifters tasks

The shifter should check regularly various hardware parameters status: HV, LV, gas, cooling, temperatures, and compare them with reference values. PLEASE DO NOT TRY TO MODIFY ANYTHING UNLESS YOU ARE VERY SURE OF WHAT YOU ARE DOING.

The shifter should know what is happening in ALICE. Refer to the ALICE elog (https://alice-logbook.cern.ch, only from ALICE machines) for various informations on the activities and runs. In particular in runs--> "runs detector" you can see the actual running status. Try also to follow the activities in the control room and report them in the shift summary.

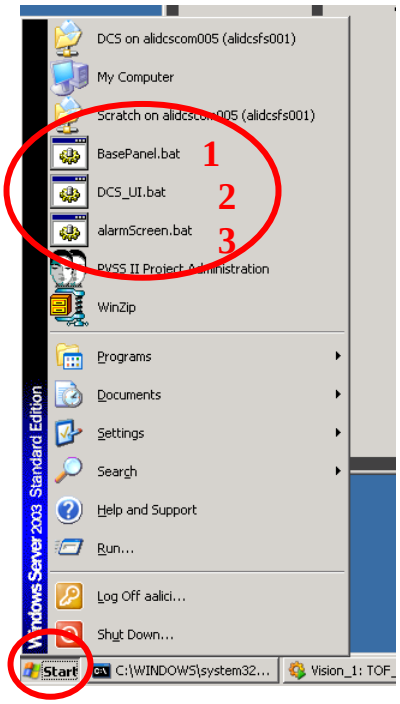
For long runs the shifter must check the data taken following the AMORE instruction in ALICE-TOF wiki (https://twiki.cern.ch/twiki/bin/view/AliceTOF/MonitoringApplications). Please report in the e-log any hole or peak in the hit rate/time/tot which is not compatible with reference values. Report in the TOF e-log https://www.bo.infn.it/elog/Commissioning/ and https://www.bo.infn.it/elog/Data+Taking/ all useful information on the shift:

- Runs: specify start/end time, trigger, readout components, magnetic field
- Errors/problems with as many details (also screen dumps).
- At the end of the shift write a mini summary of what happened (also in ALICE) during the shift. THIS IS VERY VERY IMPORTANT!!!!!

3. Starting

The machine devoted to monitoring and shifters general operations is ALITOFON001 (TOF Operator Node). Once you got logged into the DAQ machine assigned to TOF in the ALICE Control Room (account TOF, ask an expert if you don't know the password) you can start opening a remote desktop connection on the TOF Operator Node using your NICE credentials. All of you should have an active account on the operator node (if not, please send a request to A. Alici).
Three panels must be always running (you can launch them from Windows START menu):

1. BasePanel (main PVSS panel);
2. DCS User Interface (main FSM panel);
3. Alarm panel (alert monitoring).

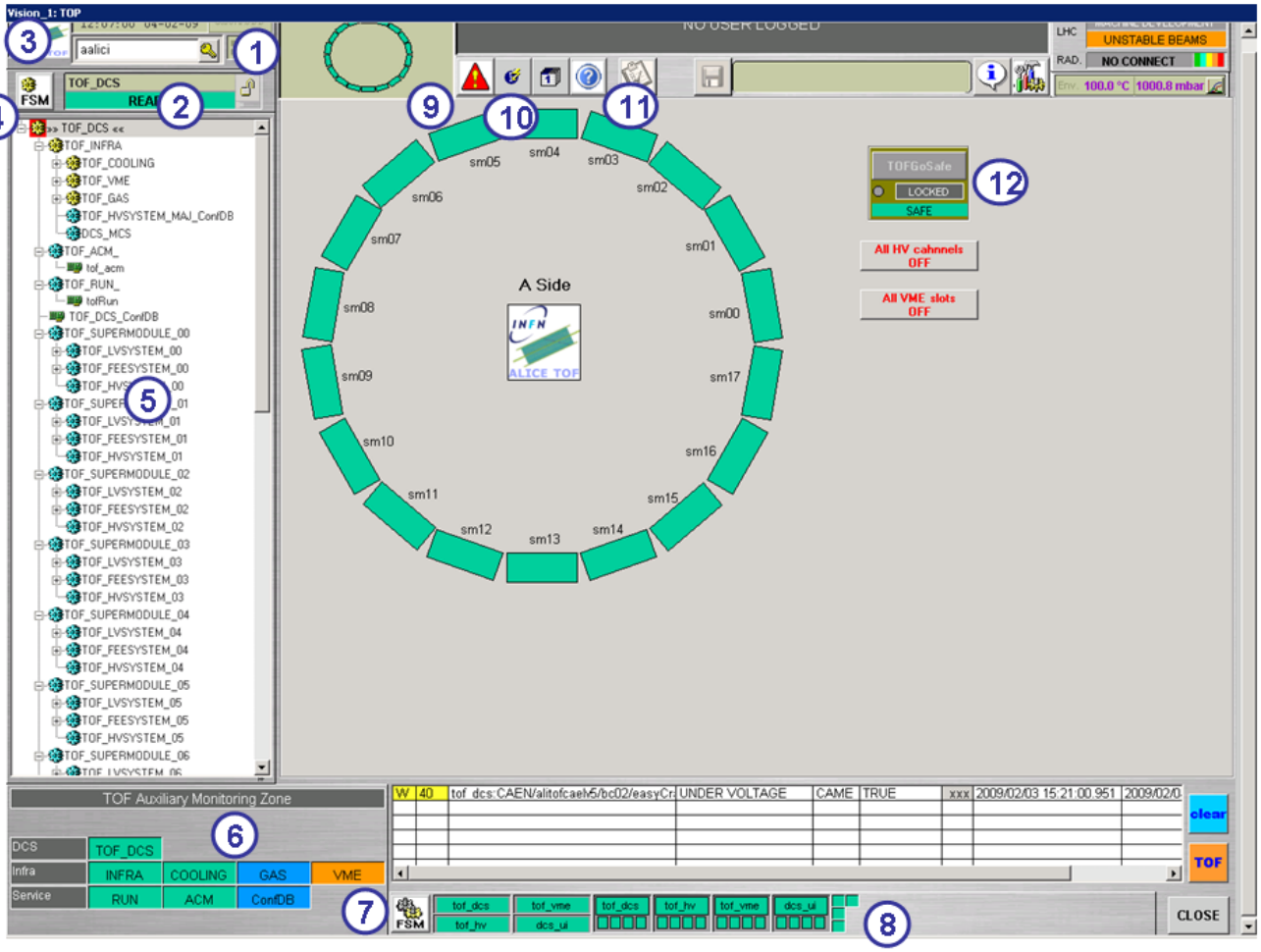


4. TOF DCS User Interface

This panel is the standard ALICE DCS User Interface; you can launch it from START → DCS_UI.bat. If you want, you can find related documentation at the following link (ver. 3.0.2):

http://alicedcs.web.cern.ch/alicedcs/Software/Downloads/AliceDcsUi_v3.0.pdf

This panel allows to monitor the state of the TOF Finite State Machine (FSM) and to send commands from the highest level of the hierarchy (TOP NODE) to all sub-nodes and devices. When the User Interface appears, it will ask you some credentials; use your NICE username and password to log in.

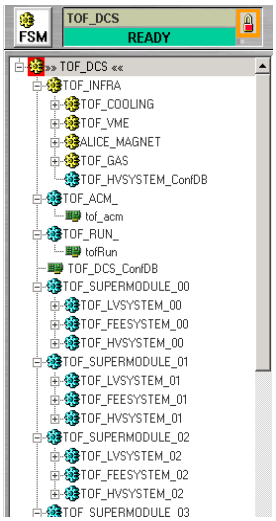


4.1 Description of the interface

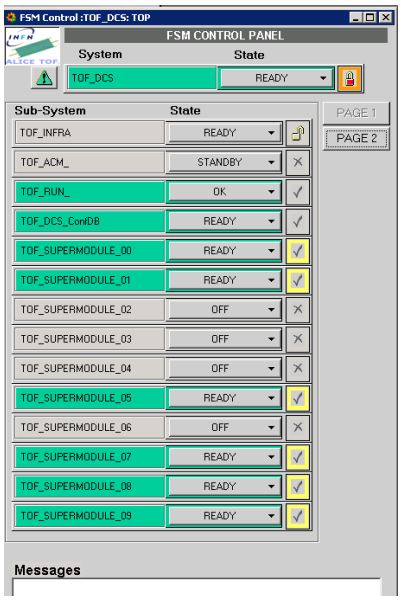
1. Detector graphic locator; this small picture shows the actual status of all SMs (whether they are included or not from the FSM).
2. Selected node FSM state.
3. Logged user (click on the key to change user).
4. FSM node control (click to open FSM control panel).
5. FSM hierarchy tree browser.
6. Auxiliary monitoring zone; it can monitor the state and operation mode of a list of critical FSM nodes. A mouse click on the node opens in a child window the panel related to that.
7. FSM expert control (click to open FSM management panel).
8. State of distributed computers.
9. Click to open JCOP Alarm Panel (I recommend to open this panel from the Windows START Menu).
10. Click to open PVSS Info Browser.
11. Click to open these instructions.
12. Emergency button (click to shutdown the whole TOF detector). To be used only in emergency circumstances.

4.2 FSM hierarchy tree and Control panels

In the User Interface, the FSM hierarchy is displayed as a tree:



This tree is used to select which part of the detector has to be displayed or controlled. By default, the top node *TOF_DCS* is selected. A new part can be selected by right-clicking on the corresponding node and select *VIEW PANEL*.
By right-clicking on an already selected node, a new item appears in the menu: *OPEN FSM CONTROL*. This opens the panel to control this node
To control the whole FSM, open FSM Control Panel, while the top node *TOF_DCS* is selected in the FSM tree.



These panels are used to control the FSM. There are 3 ways to invoke these panels:

- By clicking on the *FSM Control* button while the FMS which is to be controlled is selected
- By right-clicking on the selected node in the tree view and select *OPEN FSM CONTROL*
- By double-clicking on one of the children in an already opened FSM Control panel

For each FSM a lock indicate the status of its ownership. The different states are:
- *Unlocked* (Grey): nobody has control of its FSM. It means you can take it.
- *Green*: you have the control of this FSM.
- *Red*: somebody else has the control. It means you cannot take it before the control is released.
- *Blue*: the control of this FSM is shared.

Taking control of the FSM

When the lock is in *unlocked* state, the control of the FSM can be taken by clicking on the lock and select *take* in the menu. Then, it is possible to change the state of the FSM by clicking on the FSM state and select a command in the menu

Releasing control

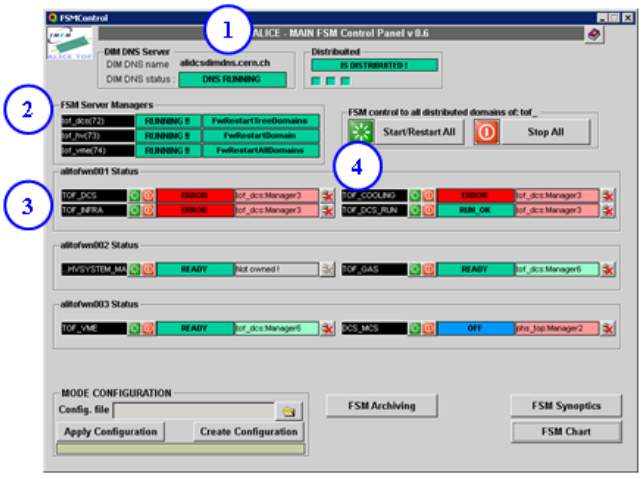
This is done by clicking on the lock and select *release* in the menu.

Excluding parts of the detector

It is possible to exclude parts of the detector from the FSM, by clicking on the lock of the part to be removed, and select *exclude* in the menu. For some children this exclusion it is only temporary. Once the FSM control is released and taken by another computer, these excluded children will be included again. It is still possible to make this exclusion permanent: after the children have been excluded, re-click on the lock and select *LockOut* in the menu.

4.3 FSM expert control panel

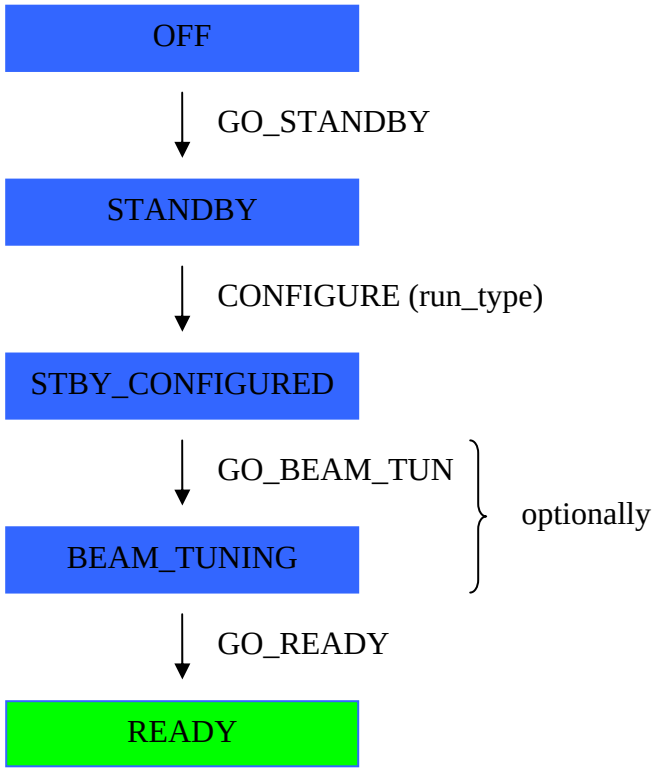
The FSM Expert Control panel contains all relevant information about FSM detailed status and control.



1. *DIM DNS Server*: it displays the status of DIM DNS server node.
2. *FSM Server Managers*: it displays the status of a FSM server manager; the name of the system, the status of fwFsmSrv.ctl manager and the status of the FSM server manager are showed.
3. *Node Status*: it displays the status of a FSM domain node. The name of node, two push button to restart and stop the FSM tree recursively, the status of FSM Domain node and the ownership of that domain are showed.
4. *Release FSM Node*: release the ownership of the FSM.

4.4 FSM General Overview

The core of the DCS is based on Finite State Machine. A FSM is an intuitive, generic mechanism to model the functionality of a piece of equipment or a sub-system. The entity to be modeled is thought of as having a set of stable (finite) *states*. It can move between these states by executing *actions* that are triggered either by commands from an operator or another component or by other events such as state changes of other components. The control system is build as a tree-like structure. Communication between the different nodes in the tree (the control and device units) is performed via a well defined, so called, state/command interface.
Commands will propagate from the highest levels through the control units to end in the device units where action on the real hardware is performed.
States will propagate from the lower levels to the higher levels.
The set of all disposable states for TOF DCS is (and the shifters and anyone else MUST STRICLY follow the exact sequence powering ON and OFF the detector) is:

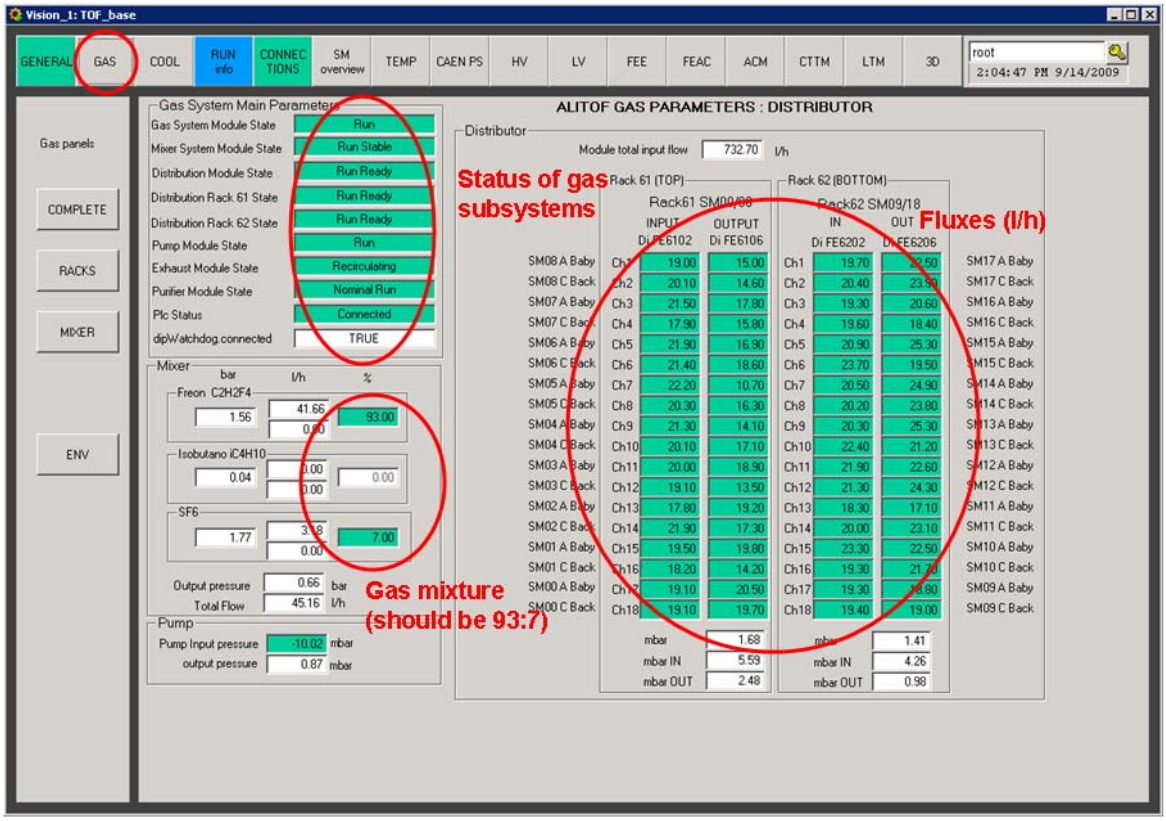


The state **OFF** means that the full detector (LV, HV, VME crates …) is OFF. In the **STANDBY** state all the LV channels as well as the VME slots are powered ON.
In the **STBY_CONFIGURED** important checks and configurations on the VME boards are performed.
BEAM_TUNING means essentially FEE ready but HV @ 1 kV (safe condition for beam injection).
In the **READY** state the detector is finally ready for taking data.
A set of command is defined as well: **GO_OFF, GO_STANDBY, GO_STBY_CONF, GO_BEAM_TUNING**, **GO_READY, CONFIGURE** and **PREPARE_FOR_RUN.**
During a state transition the will assume one of the following transient states: **MOVING_STANDBY, MOVING_STBY_CONF, MOVING_BEAM_TUN, MOVING_READY, DOWNLOADING.**

5. Base Panel

The Base Panel is a collection of many useful panels devoted to monitor and to control parts of the detector.

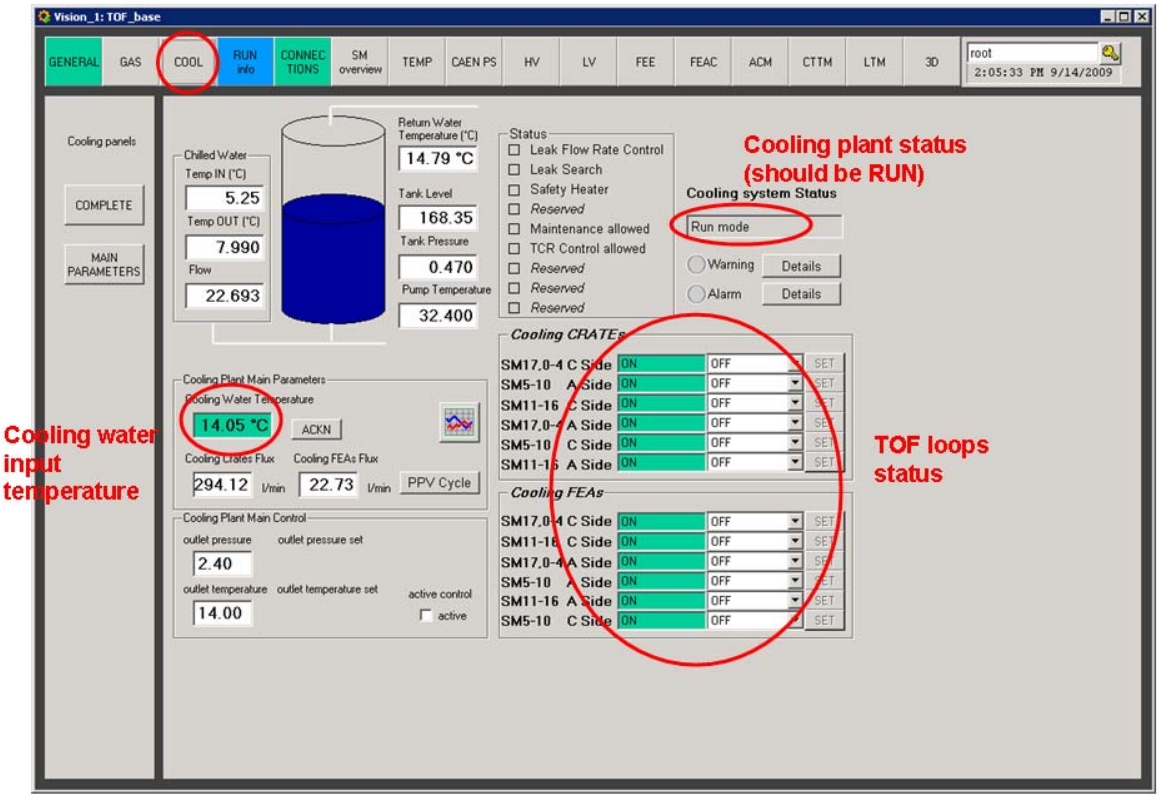
5.1 Gas Panel



The gas mixture is currently 93% Freon and 7% SF_6. A change in the status of one of the subsystems will trigger an alert (an alert sms to gas system expert will be also sent).

It is important to monitor the module gas fluxes and the state of the gas subsystems (see picture above).
NB: presently the GAS FSM could be NOT READY even if everything works. Please, refer to the picture above to see if the gas system is working or not.

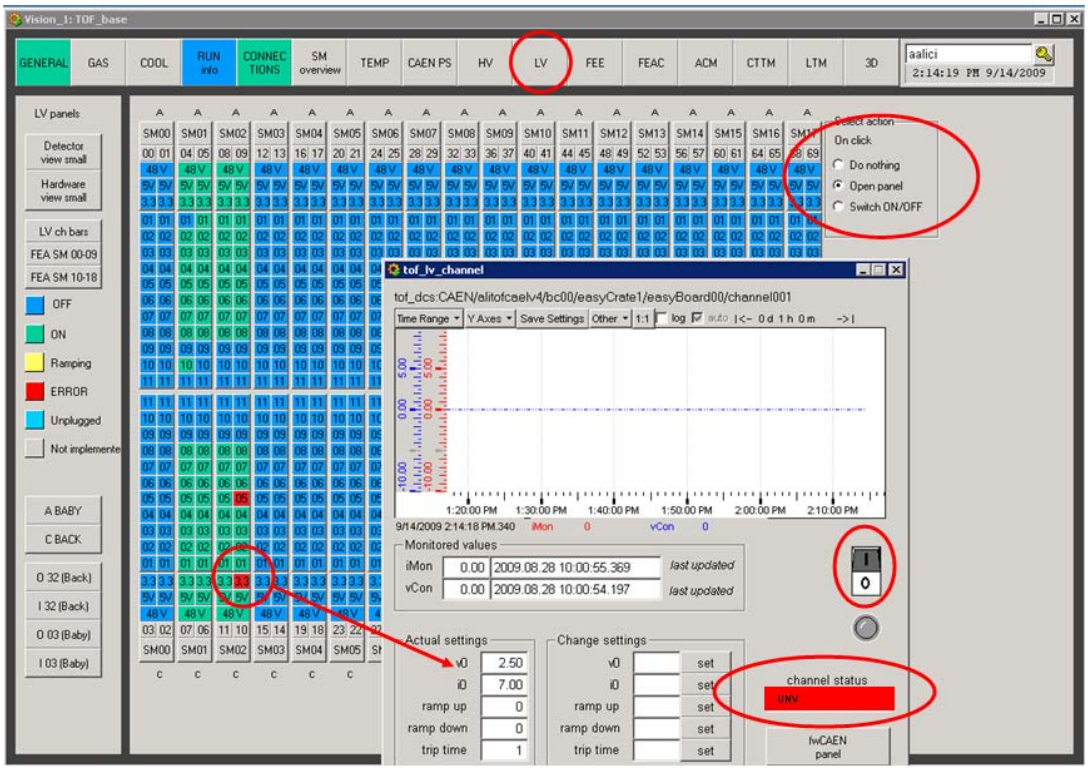
5.2 Cooling Panel



The status of the whole cooling plant as well as single TOF loops can be monitored from here. In normal condition you should have:
- Cooling system in RUN mode.
- ALL loops ON!
- Cooling water temperature of about 14°C.
- Return water temperature non exceeding 20°C.
- Cooling crates flux of about 300 l/min.
- Cooling FEAs flux of about 30 l/min.

NB: during maintenance operations all the loops are in ERROR. This is normal!

5.3 LV Panel

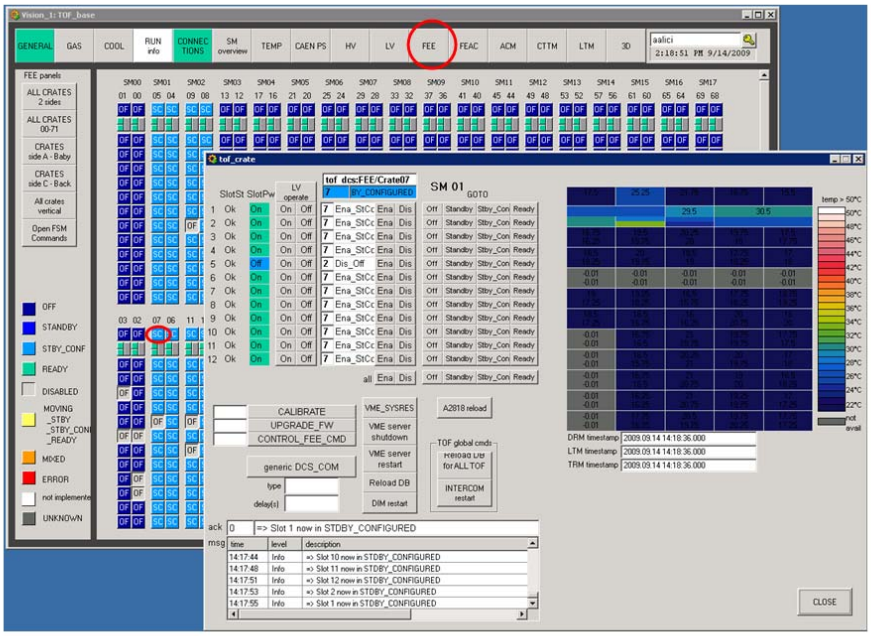


From here it is possible to monitor and to operate LV channels. Clicking on a square with *Open panel* action selected opens the relevant LV operational panel. To fix a LV channel try a few power cycles (OFF → ON) then, if problems cannot be fixed, switch that channel OFF and remove the corresponding object from FSM.

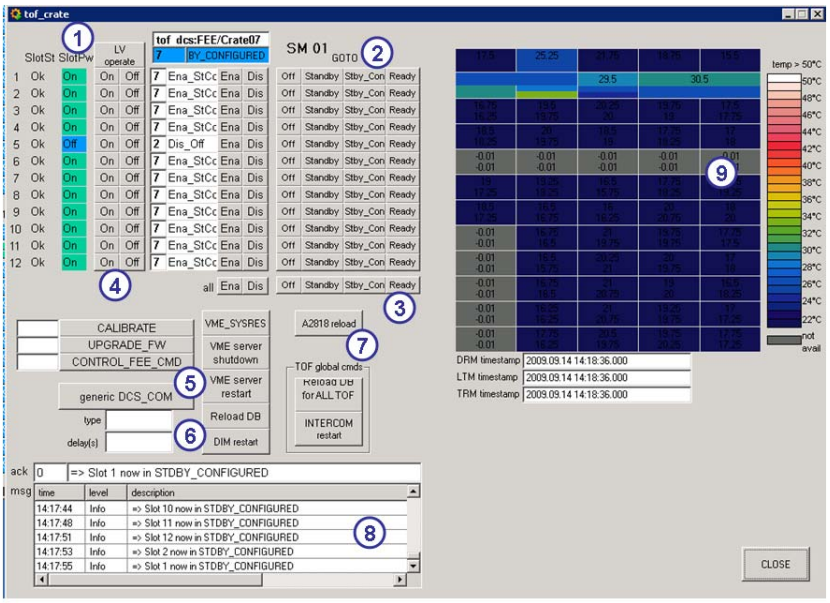
When you are going to switch OFF/ON a whole crate, remember that:

1. **switching ON → you MUST first power on the RIGHT one, then the LEFT one.**
2. **switching OFF → you MUST first power off the LEFT one, then the RIGHT one.**

5.4 FEE Panel

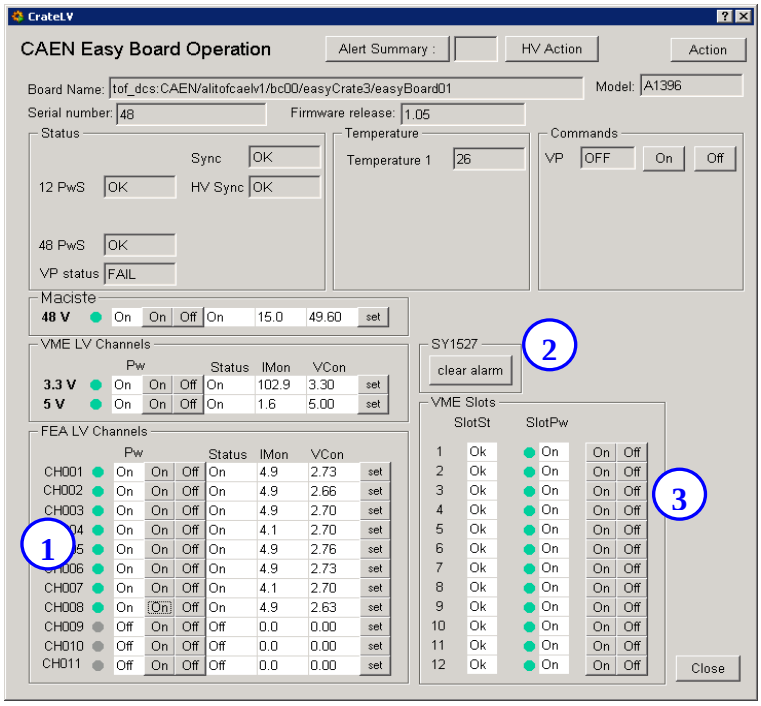


Clicking on a crate square opens the relevant FEE operational panel. That panel could be also opened from the DCS UI:
DCS_UI: → *TOF_DCS* →*TOF_SUPERMODULE_##* → *TOF_FEESYSTEM_##* → *TOF_FEEBABYCRATES_####* → *Crate##* or *TOF_FEEBACKCRATES_####* → *Crate##*
Description of the panel:



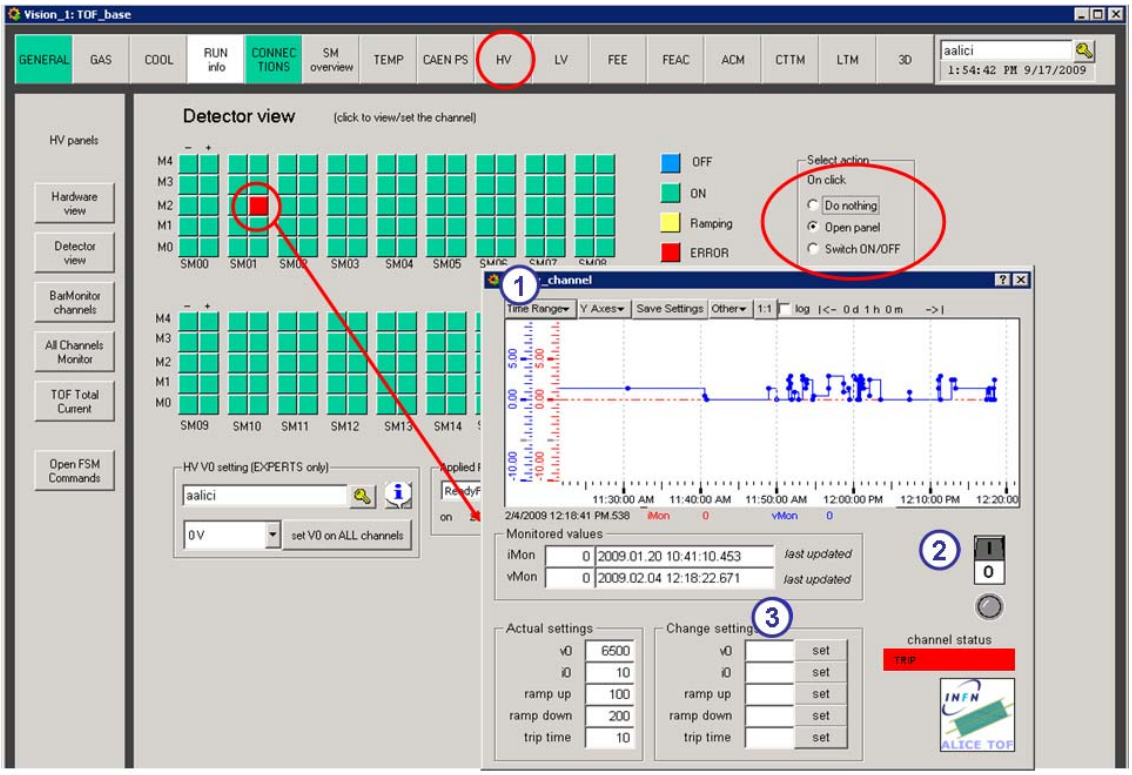
1. *LV operate*: it opens the LV operational panel of this crate;
2. From here you can send commands to each VME board or enable/disable it;
3. From here you can send commands to the whole crate;
4. From here you can turn on and off the VME slot directly via the OPC server;
5. **VME server restart:** push to restart the VME server of this crate. After this the crate will get STANDBY;
6. **DIM restart:** push to restart the DIM server. After this all four SM crates will get STANDBY;
7. **A2818 reload:** push to reload the A2818 PCI card;
8. Crate infoBrowser (table with log messages from VME server);
9. VME boards temperatures display.

Selecting *LV operate* opens the LV operational panel. That panel could be also opened from the DCS UI:
DCS_UI: → *TOF_DCS* →*TOF_SUPERMODULE_##* → *TOF_LVSYSTEM_##* → *TOF_LVBABYCRATES_####* or *TOF_LVBACKCRATES_####*



1. From here you can turn on and off the LV channels. Use this button if you find some of these channels in error and you want to try to fix them.
2. The *Clear Alarm* command allows removing all the alarm conditions in the boards housed by this specific SY1527.
3. From here you can turn on and off the VME slots (TO BE USED ONLY IF YOU REALLY KNOW WHAT ARE YOU DOING!!).

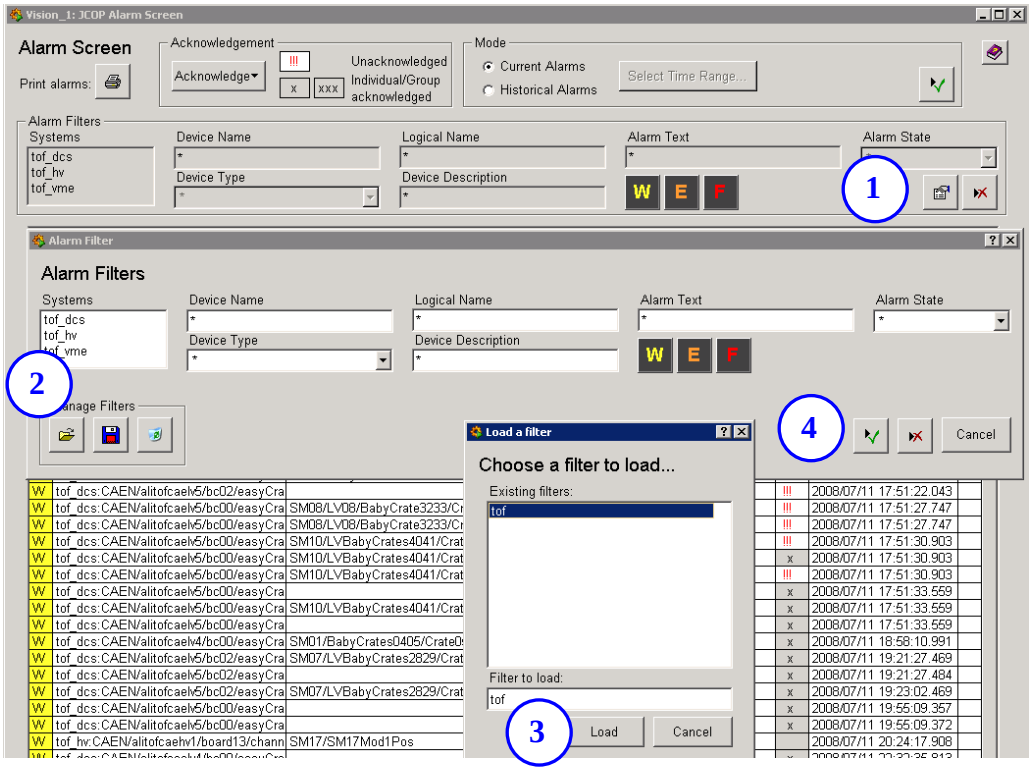
5.5 HV Panel



1. Click here to select a different time range and to have access to the channel history.
2. Click here to switch on/off the channel
3. To change a setting type in the corresponding field the value that you want to apply and then push the *set* button slots (TO BE USED ONLY IF YOU REALLY KNOW WHAT YOU ARE DOING!!).

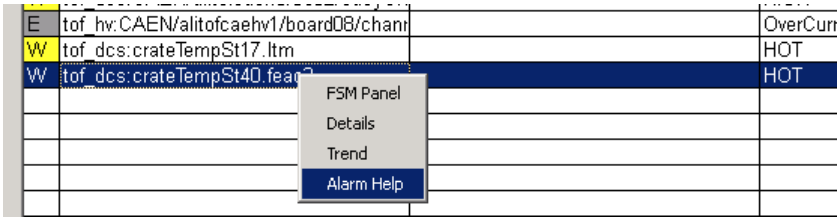
6. Alarm Panel

By default, the panel displays all the alarms coming from all the ALICE DCS sub-systems; to display only the TOF alarms one have to use the appropriate filter.



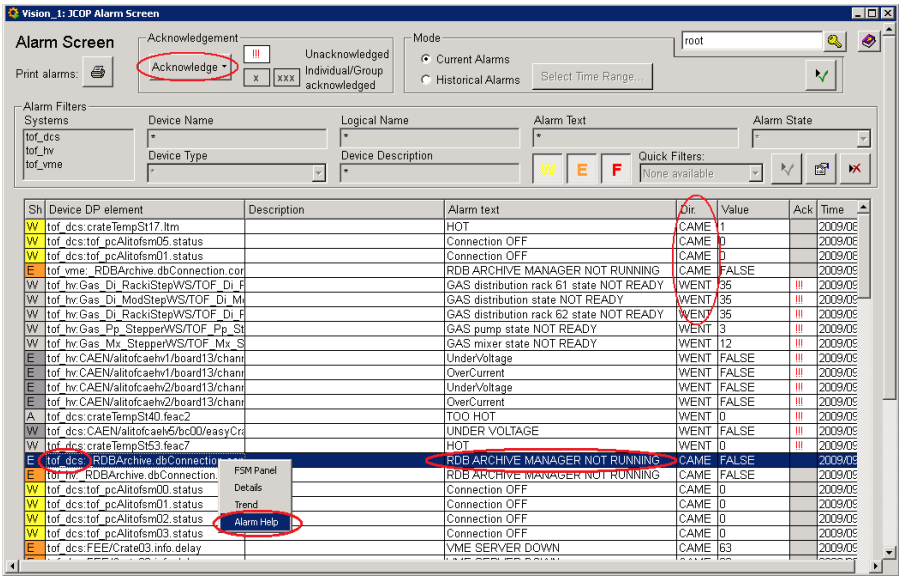
- Click on the Modify Filter button (1);
- Click on the Open folder button (2);
- Select the *tof* filter and load it (3);
- Apply the filter (4).

By right-clicking on a row in the table a small menu opens. If the corresponding help file has been defined, you can open a window with some details and instructions selecting *Alarm Help*.



6.1 An instructive example: RDB manager DOWN

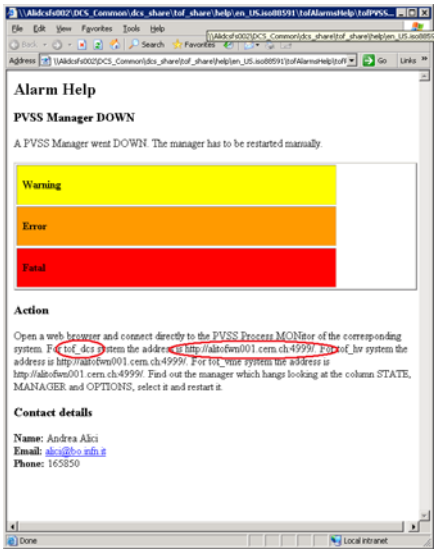
TOF data (voltage, current, temperature…) are recorded in an on-line Oracle database through the use of the RDB (Relational Database) Manager provided by PVSS. Let suppose that the following alert came



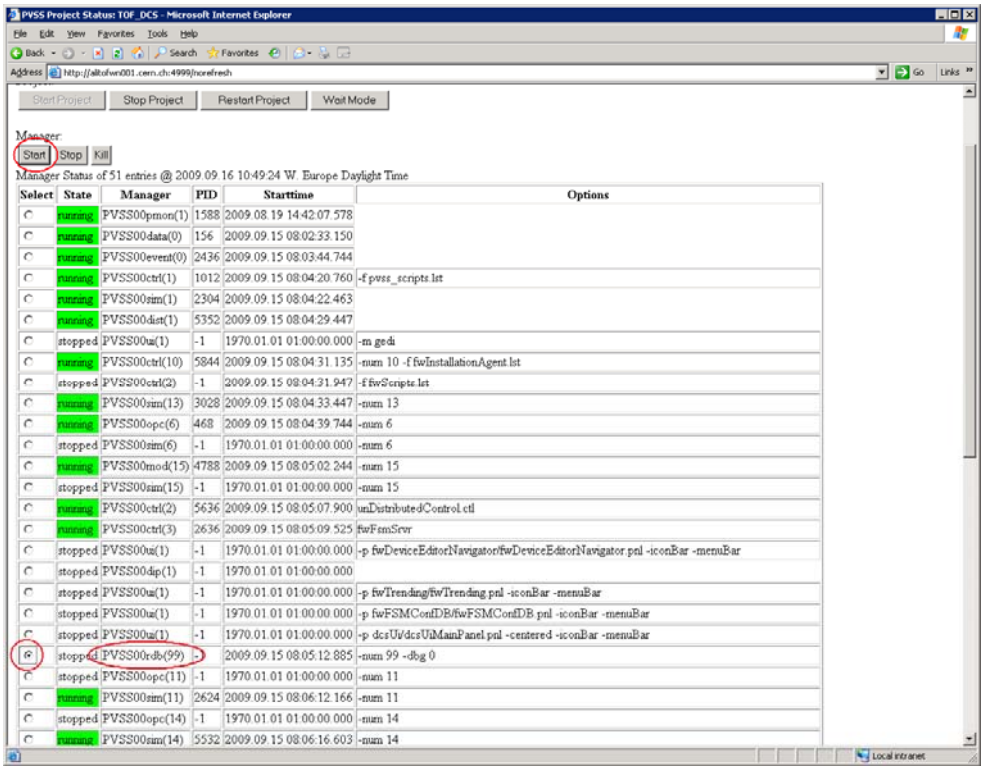
The alert is flagged in the Direction column (*Dir.* in the panel) as *CAME* or *WENT*. CAME it means that alert is still active while WENT it means that the alert went out (and you can acknowledge it using the button in the panel).
You can check also date and time of the alarm looking at the *Time* column.
In the table you can see:

1. the system sending the alert *(tof_dcs*)
2. the alert description (*RDB ARCHIVE MANAGER NOT RUNNING*)

Right-click on the row in the table and select *Alarm Help*. A standard help panel opens



The panel suggests you to open with a web browser the page http://alitofwn001.cern.ch:4999/



Find the right manager (*PVSS00rdb(99)*), select the radio button on the left and click on *Start.*

7. Alarms

7.1 Alarm List

- **LV System**
  - Over Current
  - Under Voltage
  - Over Voltage
  - Trip
  - A1396 temperature (with action on LV channels)
  - VME boards temperature (with action on VME slots)
  - FEAC cards temperature (action on FEAC cards not active jet)

- **HV System**
  - Over Current
  - Under Voltage
  - Over Voltage
  - Trip

- **Connections**
  - Crate DIM server
  - Crate VME server
  - INTERCOM, ACM server, CTTM server
  - RDB and DIST Managers status
  - Linux PCs status
  - PVSS DIM Managers status
  - OPC Server status

- **Cooling System**
  - Cooling water temperature
  - Crate Flux (SMS to expert will be also sent)

- **Gas System**
  - Distribution Rack 61 status (SMS to expert will be also sent)
  - Distribution Rack 62 status (SMS to expert will be also sent)
  - Mixer module status (SMS to expert will be also sent)
  - Pump status (SMS to expert will be also sent)
  - Purifier module status (SMS to expert will be also sent)

- **General**
  - Free RAM (%) for alitofwn001, alitofwn002 and alitofwn003 (SMS to expert will be also sent)

7.2 Alarm Description

- **LV system**

  - **Over Current, Under Voltage, Trip**
    It means that some LV channels went in an OVC, UNV, OVV or TRIP error state.
    How to fix: find out which is the channel in error reading the logical name of the object in the Alarm panel. Using the FSM hierarchy tree browser find out the relevant node and open the operational panel. Try to switch OFF and ON again that channel, or get a *Clear Alarm* if needed. If the error still persists, the corresponding object has to be removed from the FSM.

  - **A1396 temperature**
    HOT: it means that the temperature of an A1396 is more than 40°C.
    VERY HOT: it means that the temperature of an A1396 is more than 45°C.
    TOO HOT: it means that the temperature of an A1396 is more than 50°C.
    How to fix: if the temperatures reach the 50°C, the crate will be suddenly switched off. Before it happens, check if the cooling plant is working fine. In any case the action to take is to switch off the crate (or the crates if the high-temperature crate is a right one) with the appropriate procedure.

  - **VME boards temperature**

Warning: it means that at least one temperature sensor of the VME board shows a temperature higher than **55°C**.
Error: it means that at least 3 temperature sensors (just one in the case of a DRM) show a temperature higher than **60°C**. **The board (the whole crate but the CPDM in the case of a DRM) will be suddenly switched off**.
How to fix: find out which is the crate housing the hot VME board reading the logical name of the object in the Alarm panel. Using the FSM hierarchy tree browser find out the relevant node, open the operational panel and disable the boards.

- **FEAC cards temperature**
  Warning: it means that the temperature of a FEAC card is higher than **35°C**.
  Error it means that the temperature of a FEAC card is higher than **40°C**.
  How to fix: using the FSM hierarchy tree browser find out the relevant node, open the operational panel, switch off the card and disable it.

- **HV system**

  - **Over Current, Under Voltage, Over Voltage, Trip**
    It means that some HV channels went in an OVC, UNV, OVV or TRIP error state.
    How to fix: find out which is the channel in error reading the logical name of the object in the Alarm panel. Using the FSM hierarchy tree browser find out the relevant node and open the operational panel. Try to switch OFF and ON again that channel, or get a *Clear Alarm* if needed. If the error still persists, you have to exclude the object from the FSM.

- **Connections**

  - **Connection with PCs OFF**
    It means that the PC could be off.
    How to fix: check if the Linux machine is really off; if this is the case turn on the machine again (see how to restart a Linux machine).

  - **VME server and DIM server DOWN**
    It means that the communication between a ddl and the corresponding Linux machine has been lost or that the Linux machine is off or hangs.
    How to fix: find out to which crate the ddl belong and open the corresponding operational panel. Click on the *VME server restart* (or *DIM server restart*) button. Check the status of the Linux machine (ALITOFSM## where ## is the SM's number). If problem still persists you have to switch off the whole crate because the board temperatures are not monitored so far.

  - **ACM server DOWN**
    It means that the communication with the ACM has been lost or that the Linux machine ALITOFCTRL is off or hangs.
    How to fix: open the ACM operational panel and click on the *ACM restart* button. Check if ALITOFCTRL is working well.

- **ACM server DOWN**
  It means that the communication with the ACM has been lost or that the Linux machine ALITOFTRG is off or hangs.
  How to fix: open the ACM operational panel and click on the *ACM restart* button. Check if ALITOFTRG is working well.

- **INTERCOM server DOWN**
  It means that the INTERCOM server is not running so far.
  How to fix: open the RUN operational panel and click on the *INTERCOM restart* button.

- **PVSS Dist and RDB Manager status**
  Some critical PVSS managers (Distribution Manager manage the connection between the main project TOF_DCS and the other projects, RDB Manager manage the data storage on ORACLE database) are continuously monitored. If they stop to work properly an alert is activated. To restart a manager you can look at the section *How to monitor PVSS managers* of this manual.

- **PVSS DIM Manager status**
  PVSS DIM Managers are continuously monitored. If they stop to work properly an alert is activated. To restart a manager you can look at the section *How to monitor PVSS managers* of this manual.

- **OPC Server status**
  If an OPC server hangs you lose the communication with the LV channels belonging to an SY1527 mainframe.
  How to fix: go in front on the SY1527 and reset it.

- **Cooling System**

  - **Cooling water temperature**
    The temperature of the cooling water is monitored and registered at the exit of the tank.
    TOO LOW: cooling water temperature lower than 13°C.
    LOW: cooling water temperature lower than 14°C.
    HIGH: cooling water temperature higher than 18°C.
    TOO HIGH: cooling water temperature higher than 20°C.
    How to fix: check why the water temperature is so high (or low); if it is not possible to fix the problem switch off the whole TOF.

- **Gas System**

  - **Distribution Module:** the distribution module is not ready
  - **Distribution Rack 61:** the rack 61 distribution system is not ready
  - **Distribution Rack 62:** the rack 62 distribution system is not ready
  - **Mixer system:** the mixer system is not ready
  - **Pump module:** the pump system is not ready

8. FSM states and actions

The FSM controls and monitor the whole detector.
Here is a list of all the possible states of the TOF FSM hierarchy Top Node, and the commands associated to these states:

- **OFF:** Everything is OFF.
  - GO_STANDBY: all the front-end and the read-out electronics is switching ON. A recipe is loaded to set up once more all the LV channels (V0, Imax, Vmax and Trip time).
  - EOR: move the TOF_DCS_RUN to **EOR_PROGRESSING** state
  - ACK_RUN_FAILURE: send a **RESET** to the TOF_DCS_RUN

- **STANDBY:** all the LV channels are ON as well as the VME boards.
  - GO_OFF: turn OFF the whole detector.
  - CONFIGURE: a dedicated HV recipe which set up the V0 to the working voltage is loaded. Move the VME boards to **STBY_CONFIGURED** state.
  - EOR: move the TOF_DCS_RUN to **EOR_PROGRESSING** state
  - ACK_RUN_FAILURE: send a **RESET** to the TOF_DCS_RUN

- **STBY_CONFIGURED:** all the LV channels are ON and the read-out electronic is configured.
  - GO_STANDBY: move the VME boards to **STANDBY** state.
  - GO_BEAM_TUN: power on high voltage channels and load a dedicated recipe which set up the V0 to 1000V (safe condition for beam injection). Move the read-out electronic to **READY** state.
  - GO_READY: power on all the high voltage channels. Move the read-out electronic to **READY** state.
  - CONFIGURE: configure the TOF for dedicated run_type.
  - EOR: move the TOF_DCS_RUN to **EOR_PROGRESSING** state
  - ACK_RUN_FAILURE: send a **RESET** to the TOF_DCS_RUN

- **BEAM_TUNING:** safe condition for beam injection. The read-out electronic is ready for data taking, the HV channel are ON but V0 is set to 1000V only.
  - GO_STBY_CONF: switch OFF all the HV channels and move the VME boards to **STBY_CONFIGURED** state.
  - GO_READY: load a dedicated recipe which set up the HV channel V0 to the working voltage.
  - CONFIGURE: configure the TOF for dedicated run_type.
  - PREPARE_FOR_RUN: configure the TOF for dedicated run_type.
  - EOR: move the TOF_DCS_RUN to **EOR_PROGRESSING** state
  - ACK_RUN_FAILURE: send a **RESET** to the TOF_DCS_RUN

- **READY:** the detector is ready for physics data taking (the correct HV values have to be set up by the operator manually)
  - GO_BEAM_TUN: load a dedicated recipe which set up the HV channel V0 to 1000V only.
  - GO_STBY_CONF: switch OFF all the HV channels and move the VME boards to **STBY_CONFIGURED** state.

- SOR: run parameter (run type, run number and ddl list) are sent to the Run Unit and move the detector to **SOR_PROGRESSING** state.
- CONFIGURE: configure the TOF for dedicated run_type.
- PREPARE_FOR_RUN: configure the TOF for dedicated run_type.
- EOR: move the TOF_DCS_RUN to **EOR_PROGRESSING** state
- ACK_RUN_FAILURE: send a **RESET** to the TOF_DCS_RUN

- **MIXED:** the detector is in an inconsistent state (may be temporary)
  - EOR: move the TOF_DCS_RUN to **EOR_PROGRESSING** state
  - ACK_RUN_FAILURE: send a **RESET** to the TOF_DCS_RUN

- **ERROR:** a fatal error occurred in the detector.
  - GO_OFF: turn OFF the whole detector.
  - EOR: move the TOF_DCS_RUN to **EOR_PROGRESSING** state

- **MOVING_STBY_CONF:** the detector is moving to a **STBY_CONFIGURED** state.

- **MOVING_READY:** the detector is moving to a **READY** state.

- **MOVING_BEAM_TUN:** the detector is moving to a **BEAM_TUNING** state.

9. How To

9.1 How to switch ON the full detector

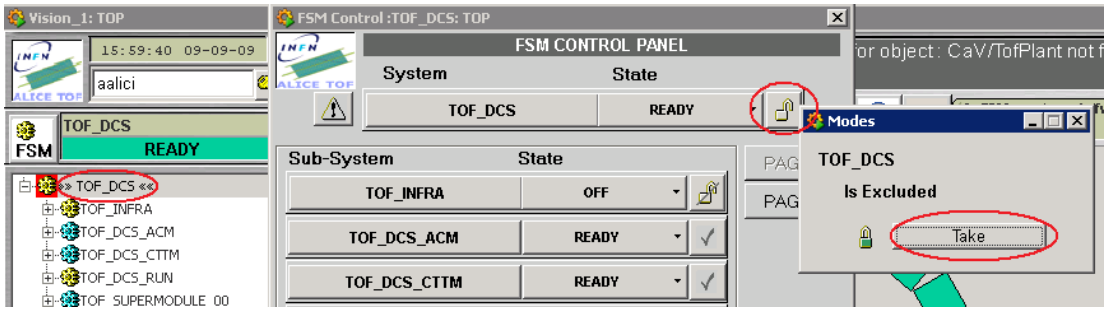
1. Open the FSM Control Panel (upper left FSM button in the DCS UI panel) while the top node (TOF_DCS) is selected in the FSM tree.
2. Take control (if it is not already taken) by clicking on the lock of the top node and select *Take*.
3. Click on the top node and select the commands to send moving the TOF in READY state :
    1. From OFF state send GO_STANDBY;
    2. From STANDBY send CONFIGURE(run type);
    3. From STBY_CONFIGURED send GO_READY.

9.2 How to switch OFF the full detector

1. Open the FSM Control Panel (upper left FSM button in the DCS UI panel) while the top node (TOF_DCS) is selected in the FSM tree.
2. Take control (if it is not already taken) by clicking on the lock of the top node and select *Take*.
3. Click on the top node and select the commands to send switching off the TOF :
    1. From READY state send GO_STBY_CONFIGURED;
    2. From STBY_CONFIGURED send GO_STANDBY;
    3. From STANDBY send GO_READY.

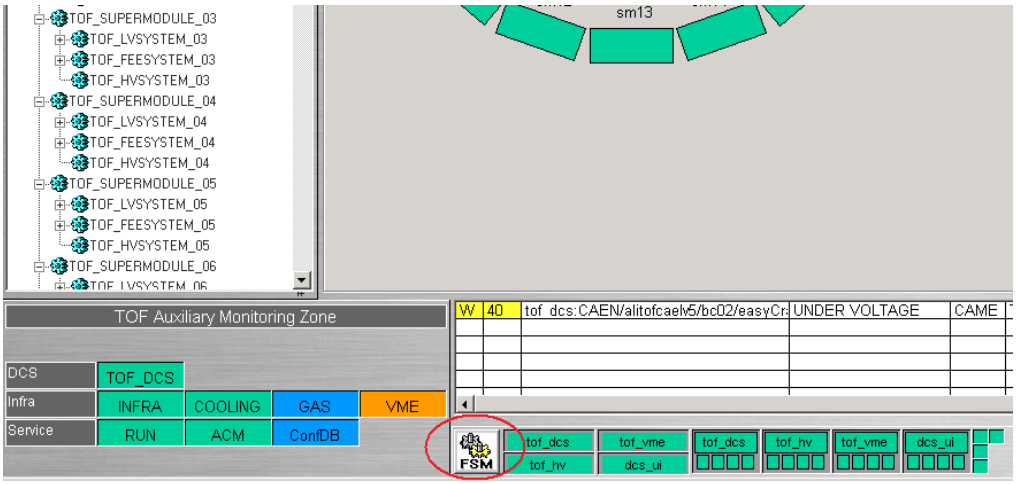
9.3 How to take control of the FSM

Right-click on TOF_DCS in the tree on the left side and select *view panel;* this opens the FSM Control Panel. Click on the lock and select *Take*. If control is taken by someone else, open the FSM expert control panel and release the ownership of the TOF DCS node.

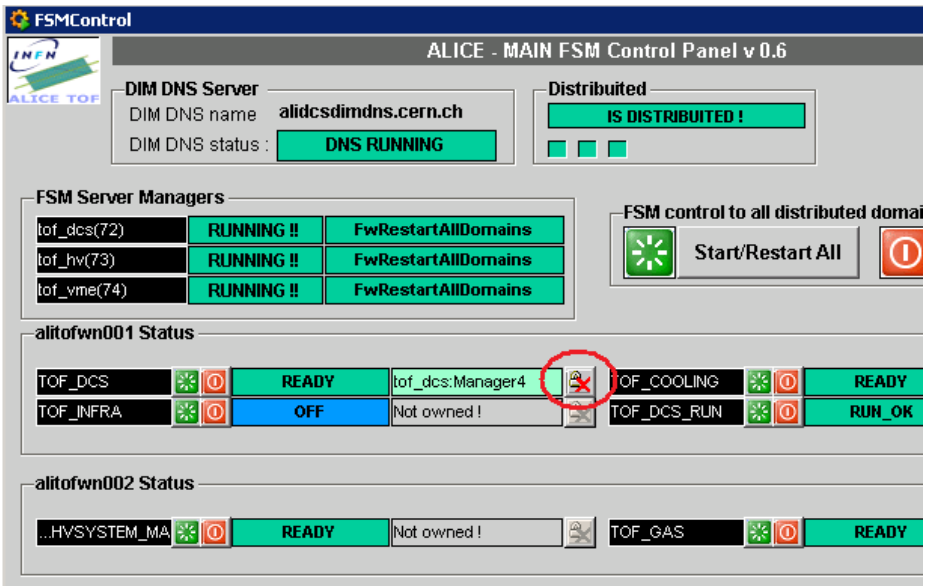


9.4 I need to take control of the TOF DCS but in the FSM Control panel the lock is red painted. What can I do?

First of all, check (asking the global DCS shifter) if the control has been already taken by the global DCS shifter. If yes, ask him to release it (if it is possible). If the global DCS shifter has not taken the lock you can release it from the FSM Expert Control panel. Press the FSM Expert Control panel button in the DCS UI:

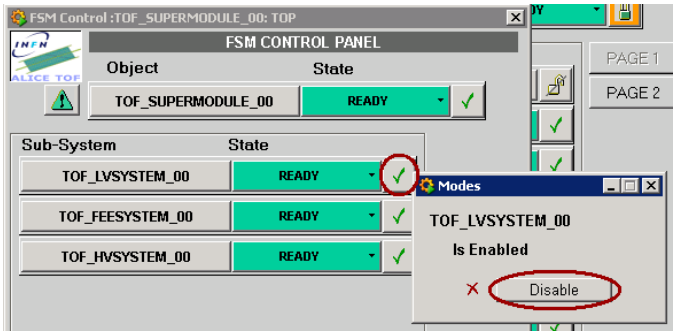


Then click on the *Release FSM Node* button to release the ownership of the FSM.



9.5 How to exclude part of the FSM

Click on the *V button* (see figure below) of the object to be excluded, then select *Disable*.

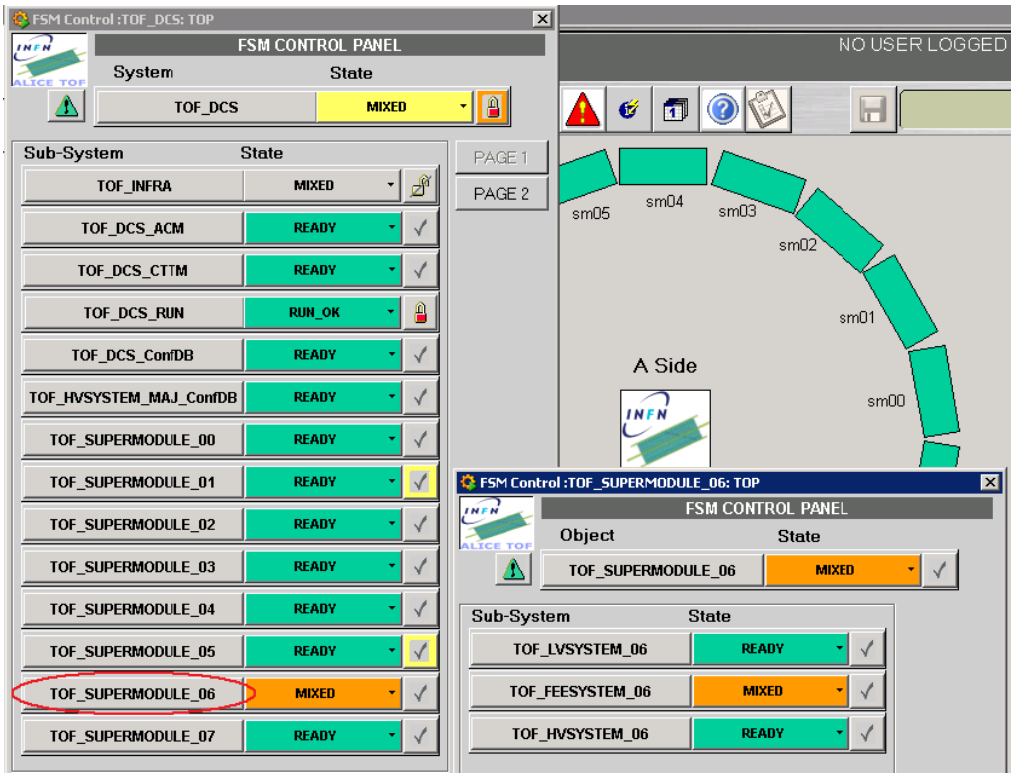


9.6 How to restart the FSM

Click on the *FSM expert control* button. Once the FSM expert control panel opens click on the *Start/Restart All* button and wait for the FSM restart.

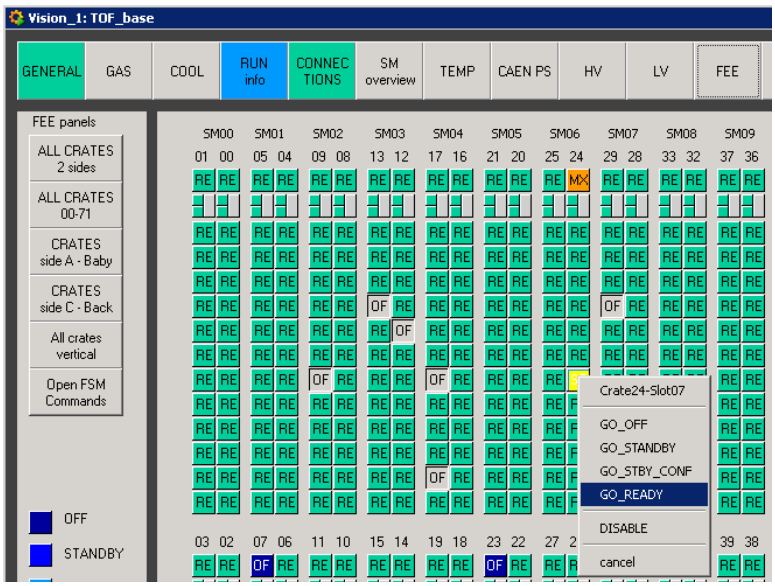
9.7 TOF is MIXED; what I have to do?

If TOF becomes not ready while is running, the run crashes. The shifter should recover that situation. First you have to find where the problem is. In the example below SuperModule 6 is in a mixed state; use the *FSM Control* panel to find in which subsystem (*LV*, *FE*E or *HV*) the problem is. Double-click on the rectangle called *TOF_SUPERMODULE_06* to expand it; in this example the problem is in the FEE subsystem (see below).



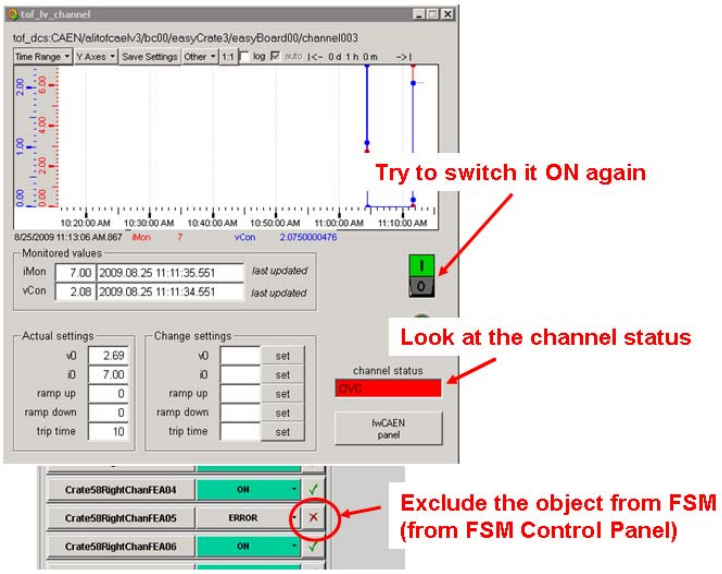
Now you can use the BasePanel to better investigate the situation. Open the FEE Panel and look at it; crate 24 is mixed because TRM in slot 7 is no more ready.

Now you can right-click on the TRM corresponding square to enable a small menu with commands you can send to the board. Select GO_READY to put the TRM in a ready state.



9.8 How to fix LV issue

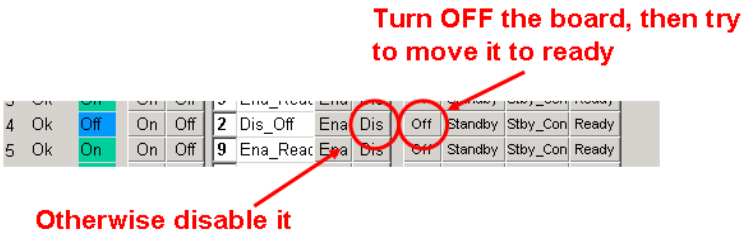
Open LV panel inside the BasePanel, select *Open Panel* in *Select action* field (up – right corner) and look at the status of LV channel. You may try to switch it ON again. If the problem cannot be fixed, exclude the corresponding object from FSM.



9.9 How to fix FEE issue

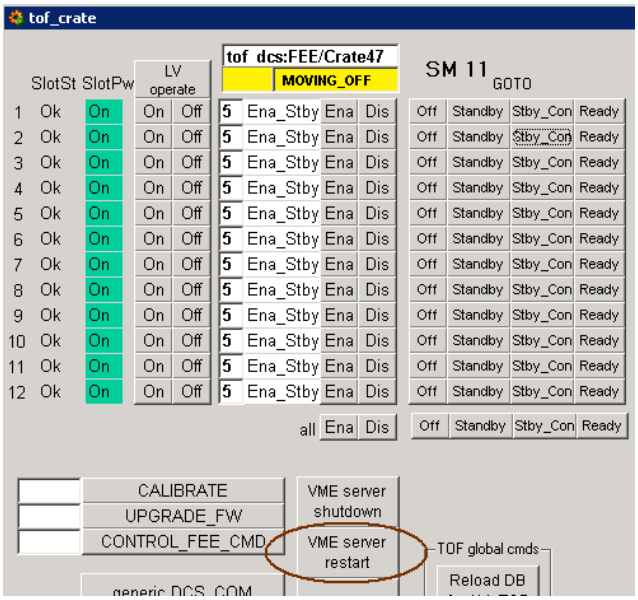
Open FEE Operational panel inside the BasePanel and look at the log table (crate InfoBrowser) to understand what happens. You may try a power cycle (turn the board OFF and then move it back to

READY). If the problem cannot be fixed, exclude the corresponding object from FSM (see picture below).



9.10 The status showed for a crate is not the correct one

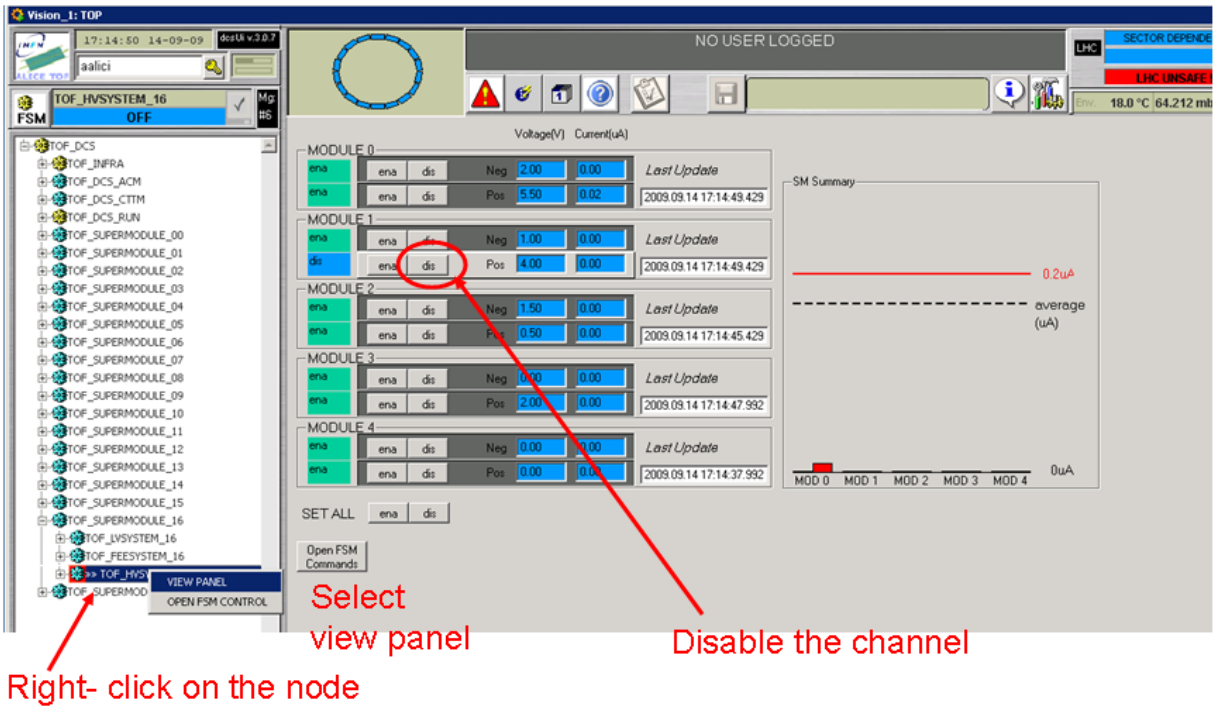
It may happen that the status showed for a crate is not the correct one (see picture below).



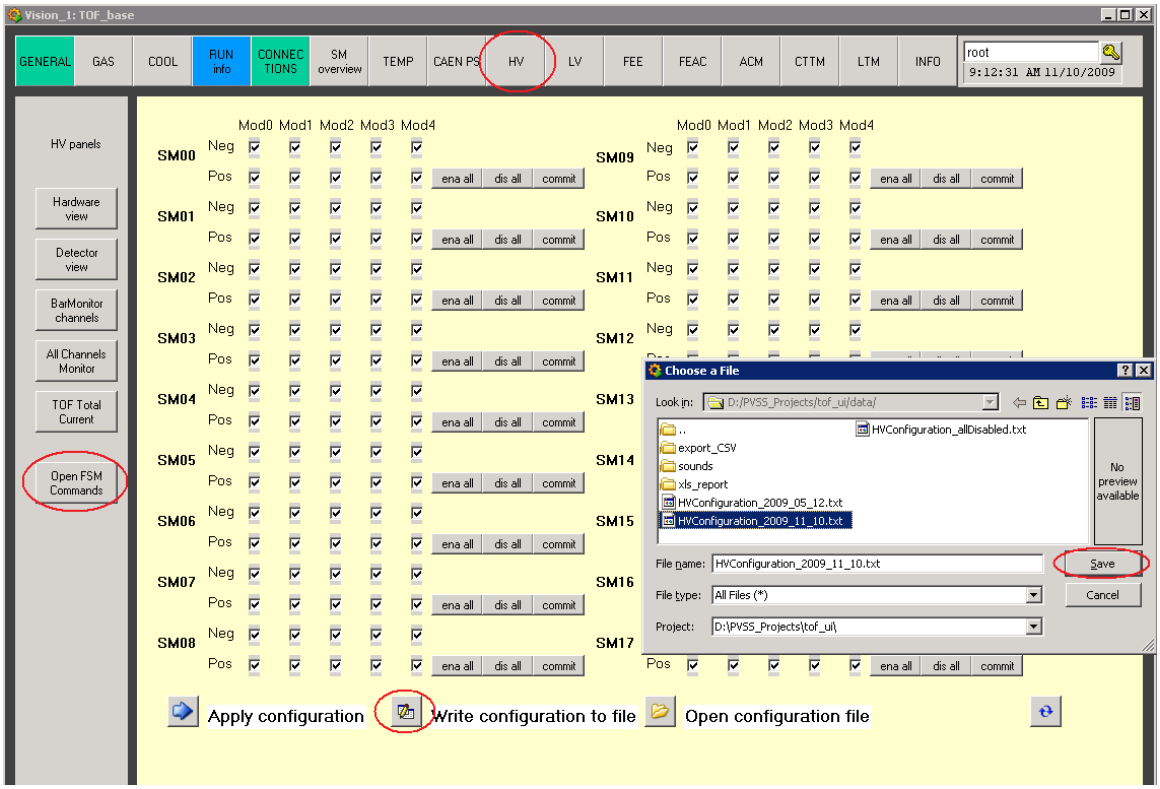
If you restart the VME server for this crate pressing on the *VME server restart* button the problems should disappear.

9.11 How to exclude HV channels from the FSM

The HV are managed by a dedicated FSM running in a separated machine. Single HV channels cannot be included or excluded in the usual way; the operational panel (in the DCS UI panel) and the enable or disable buttons have to be used instead.



After excluding the bad HV channel shifter should update the HV configuration file. Naming convention for configuration file is: *HVConfiguration_[year]_[month]_[day].txt*



9.12 How to monitor PVSS managers

If you would like to monitor or manage the status of the PVSS managers or to restart the whole project, you can connect directly to the PMON using a web browser and select the address:

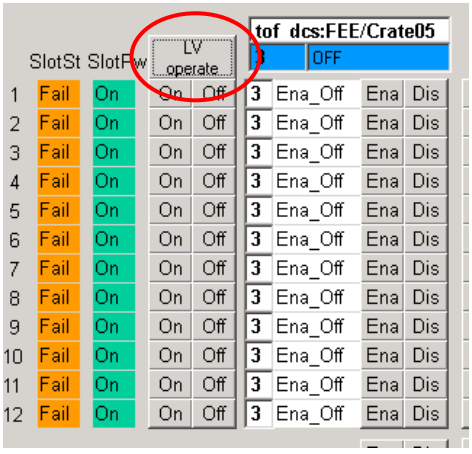
- http://alitofwn001.cern.ch:4999 for TOF_DCS
- http://alitofwn002.cern.ch:4999 for TOF_HV
- http://alitofwn003.cern.ch:4999 for TOF_VME

9.13 How to restart a Linux machine

1. Open a *ssh* session on alitofsrv, then type:
   1.1. *go [sm nr.]* (if you want to restart alitofsm00 type *go 0*; you will directly redirect to alitofsm00);
   1.2. *su* (*root* password is like the usual *tof* password)
   1.3. halt
2. From alitofsrv give the commands:
   2.1. cd SOFT/IPMI
   2.2. *./nodepower status alitofsm[sm nr.]* (if you get no answer you have to go in the CR3 and switch ON/OFF the machine directly from the front panel)
   2.3. ./nodepower off alitofsm[sm nr.]
   2.4. ./nodepower on alitofsm[sm nr.]
3. Wait for machine restart.

9.14 A whole crate OFF

If looking at the crate operational panel you find all the slots in fail

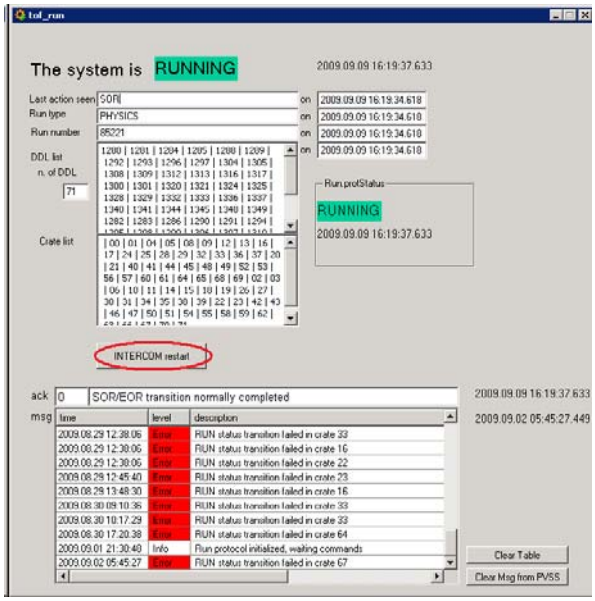


it means that the 3.3V channel is no more ON. Select *LV operate* to investigate.

9.15 Run Unit in error

If the object TOF_DCS_RUN is in error try to:

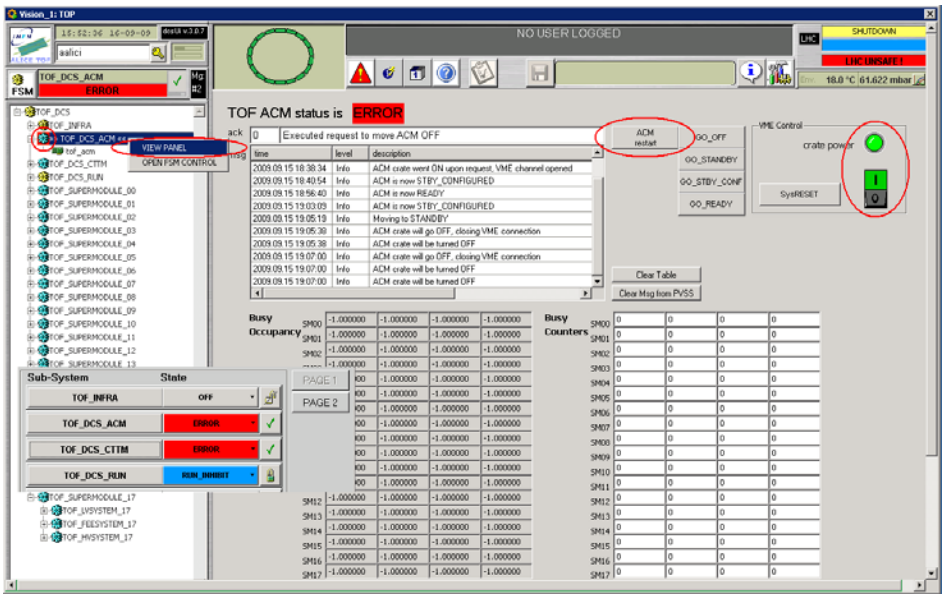
1. send a *RESET* command from the *FSM Control Panel*;
2. restart the *INTERCOM* server from the TOF_DCS_RUN panel.



9.16 ACM in error

Before to call an expert:

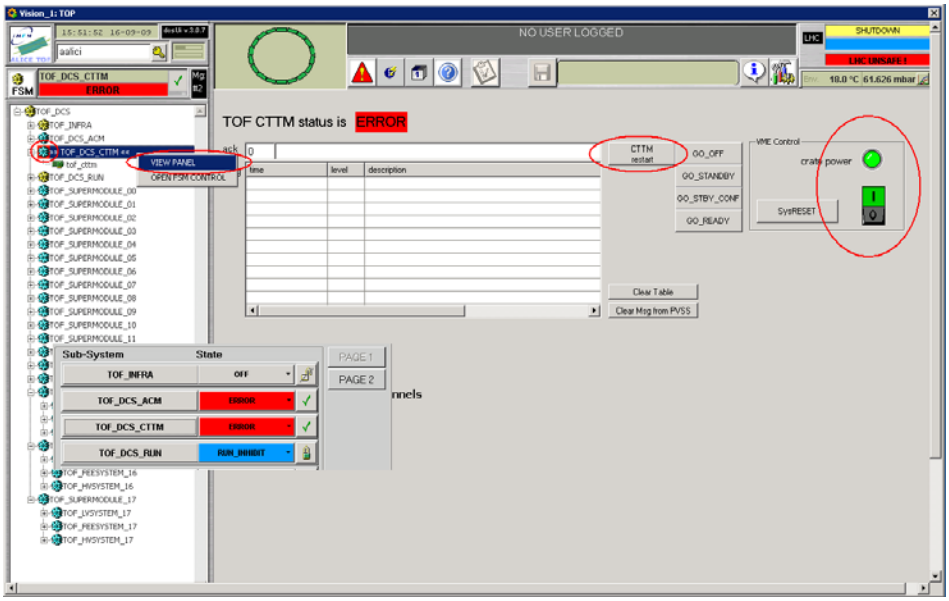
1. check if the VME crate is ON
2. restart the ACM Server



9.17 CTTM in error

Before to call an expert:

1. check if the VME crate is ON
2. restart the CTTM Server



9.18 No link to PVSS DIM service

If you receive such a message it means that one of the PVSS DIM managers is not running.
If the source of this message is the INTERCOM server it means that the DIM manager 47 should be restarted (see the section *HOW to monitor PVSS managers*).

If the source of this message is the ACM server it means that the DIM manager 48 should be restarted (see the section *HOW to monitor PVSS managers*).

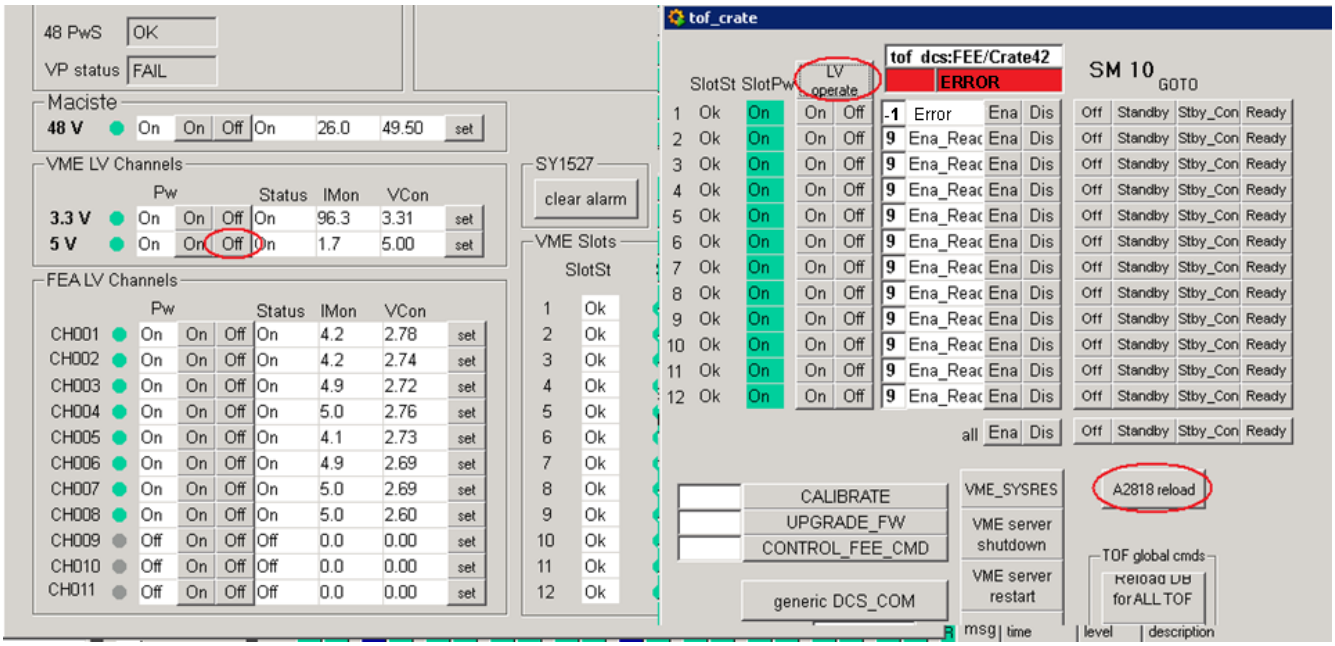
If the source of this message is the CTTM server it means that the DIM manager 46 should be restarted (see the section *HOW to monitor PVSS managers*).

If you receive a message like

PVSS DIM slot power services/command not available

while you are trying to power on or to configure a VME slot it means that the DIM manager 49 should be restarted (see the section *HOW to monitor PVSS managers*).

9.19 How to recover a DRM in error



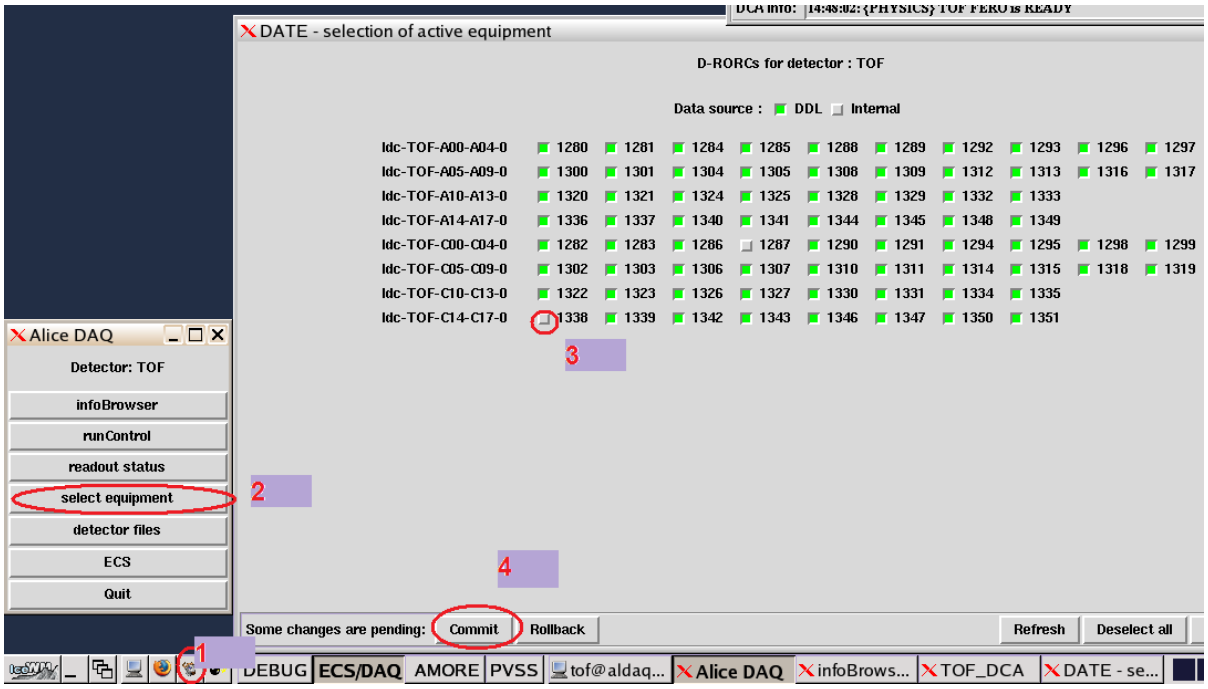
If you find the situation illustrated in the figure above and if you have the following message in the crate infoBrowser

failed to open VME connection to crate (ret=-2)

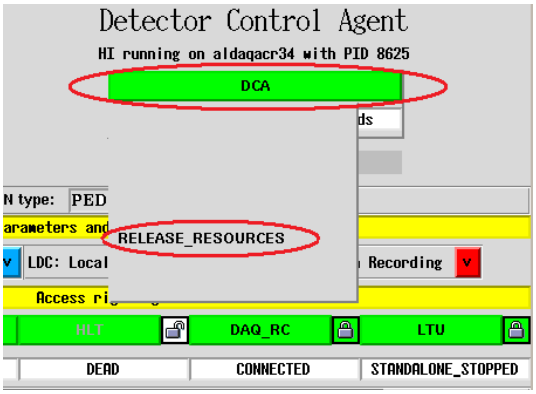
then you can try as following:

1. Try a power cycle on the DRM (switch the card off, then on again);
2. Switch off the DRM, select *A2818 Reload* and then turn on the DRM;
3. If problem is still in, try to switch off the whole crate, i.e. press the *LV operate* button and turn off the 3.3V and the 5V channel. **Remember that if the crate is a right one you MUST to turn off before the left crate, then the right one.**
4. Reboot the relevant PC Linux.

9.20 How to exclude a DDL from readout

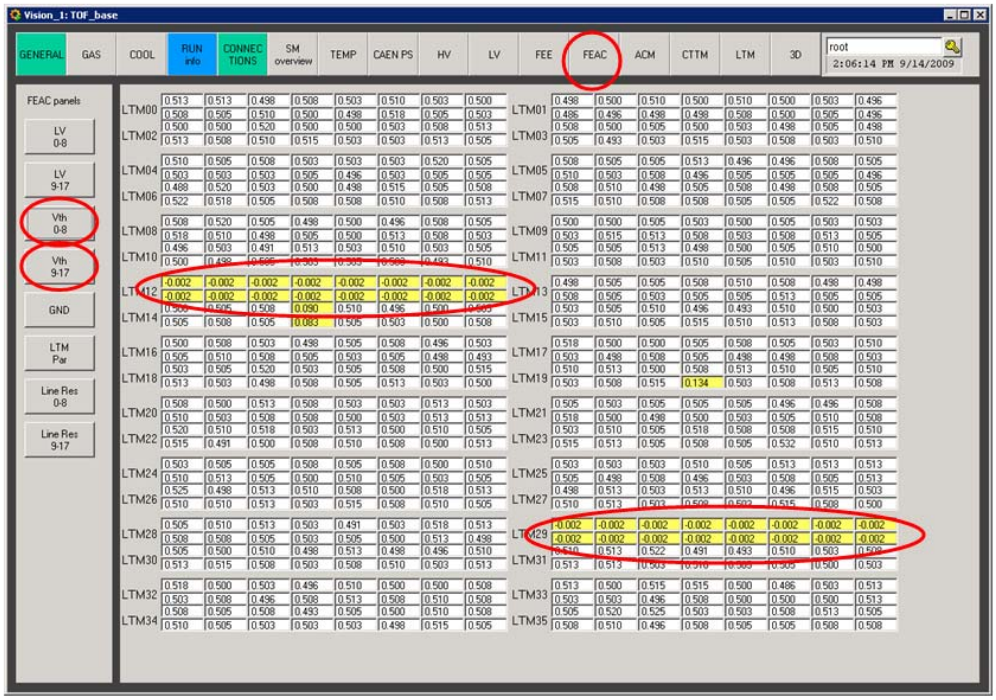


1. Open the TOF Detector Control Agent;
2. Select *select equipment*;
3. deselect the DDL you want to exclude (remember **ddl number = crate number +1280**);
4. commit your modifications;
5. release the resources (see below) from the DCA panel.



9.21 How to check the FEAC threshold

Before starting a new run it is important to check if the thresholds are correct. **Remember that the TOF_DCS must be READY and not running!**

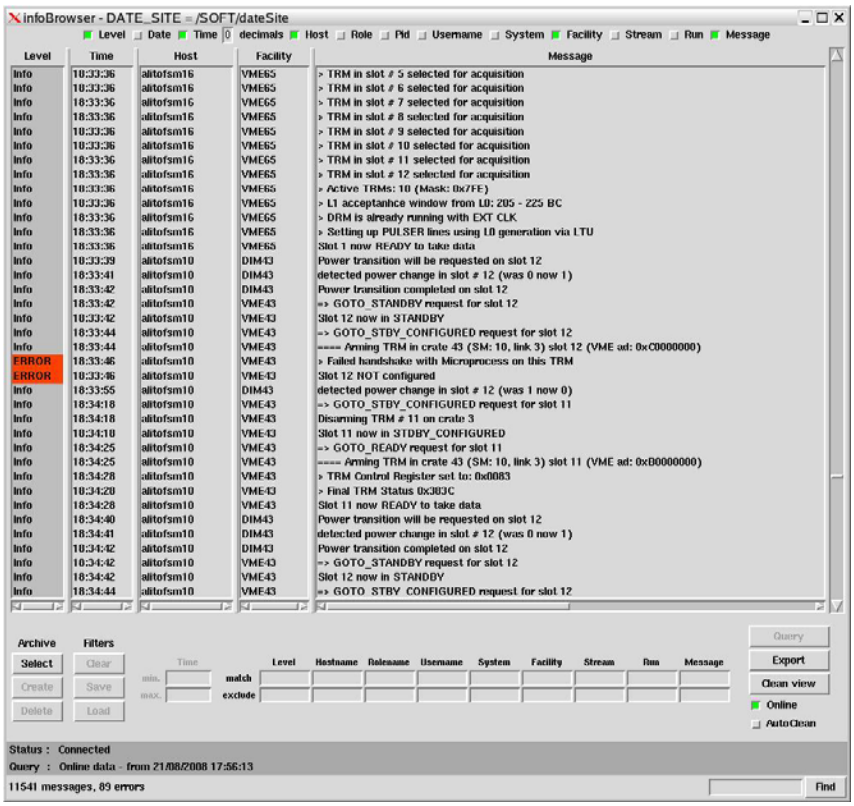


Currently thresholds are 500mV (this value could be change in future). If you find an LTM with different values try a power cycle (OFF → READY). If this doesn't fix the problem call an expert.

9.22 How to extract error from the DAQ site InfoBrowser

It is likely in your shift report you want to report error messages from the InfoBrowser (either the ALICE DAQ or the TOF one). To select a portion of messages and save it in a file follows this procedure:

- decide which messages you want to extract
- deselect the online bottom
- typically use the following keys to get only the messages you want: min Time, Level, Facility, then push *Query*



- once you have the entries you want to save, push "export" and save them in a file. The file with the error is pure text and it can be usefully sent as an attach in log entry.

9.23 Readout error

If during a run you get errors in the DAQ like

Read Event Rorc Data, eqId=1287, CDH mismatch

ReadEvent RorcData: eqId=1287, (ERROR 357) CDH trigger error bit(s)

First of all try to start a new run. If you get still problems remove the DDL from readout.

10. Useful information

Andrea's CERN mobile: **165850**
Gilda's CERN mobile: **162836**
Roberto's CERN mobile: **161036**
ALICE Control Room: **76753**

ALICE TOF Twiki: https://twiki.cern.ch/twiki/bin/view/AliceTOF/WebHome
ALICE TOF Elog: https://www.bo.infn.it/elog/ALICE-TOF/
ALICE DCS Pages: http://alicedcs.web.cern.ch/alicedcs/
ALICE Homepage: http://aliceinfo.cern.ch/