

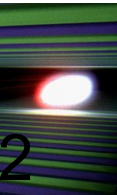


# xTCA Remote Management

Vahan Petrosyan



# Remote Management of the crates in DOOCS



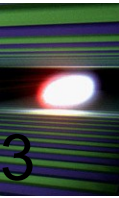
- Integration of xTCA management in DOOCS control system

**IPMI** (Intelligent Platform Management Interface) is the management protocol.

- The several open-source projects are available for IPMI interface:

<code>Ipmitool</code>	<code><a href="http://ipmitool.sourceforge.net">ipmitool.sourceforge.net</a></code>
<code>Ipmiutil</code>	<code><a href="http://ipmiutil.sourceforge.net">ipmiutil.sourceforge.net</a></code>
<code>Freeipmi</code>	<code><a href="http://www.gnu.org/software/freeipmi">www.gnu.org/software/freeipmi</a></code>
<code>OpenIPMI</code>	<code><a href="http://sourceforge.net/projects/openipmi">sourceforge.net/projects/openipmi</a></code>

- The sources from `ipmitool` project were used to create `doocs-ipmilib`. It was originally written to take advantage of IPMI-over-LAN interface. The `doocs-ipmilib` provides base IPMI functions ( reading FRU infos and Sensors ) and extended commands for xTCA control and monitor (PICMG commands).



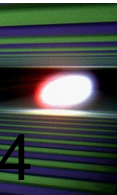
## ■ Integration of xTCA management in DOOCS control system

The **DOOCS** (Distributed Object Oriented Control System) server was developed to integrate the remote management of the MicroTCA crates in DOOCS control system.

The *mtcaipmi\_server*:

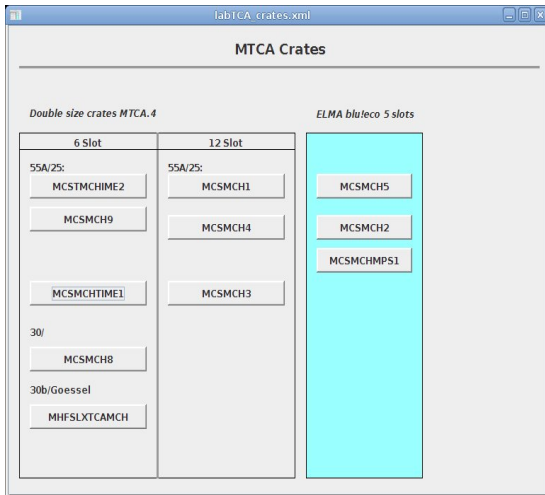
- communicates to MCH via Ethernet using IPMI messages and provides interface to the DOOCS system
- requires only hostname of the MCH in configuration file
- dynamically removes and adds modules
- provides FRU information, LEDs statuses, system events (SEL) , sensors values with histories
- gives a possibility to switch on/off, reboot and reset modules remotely

# Remote Management of the crates in DOOCS

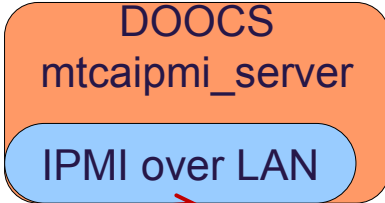
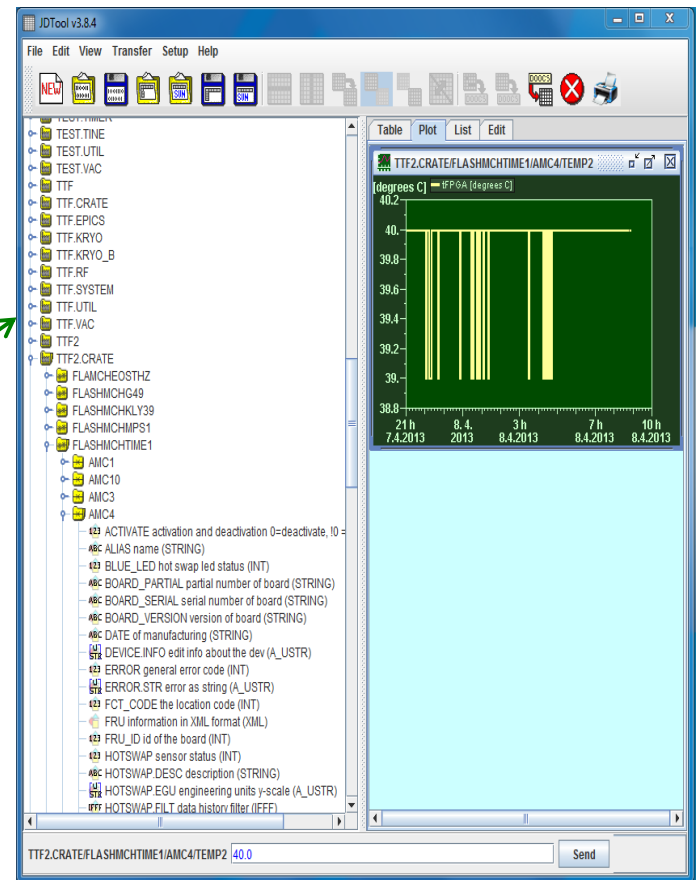


- The crates in Java GUI applications

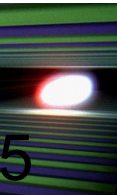
JDDD



jDTool



# Remote Management of the crates in DOOCS



- The crates in Java GUI applications

JDDD

The screenshot displays the JDDD (Java GUI for DOOCS) application interface. The window title is 'jddd 1.5.39/1.5.42 T4.3.6 vahan@MCSVAHAN2 SystemStatus.xml'. The interface includes a menu bar (File, View, Help) and a toolbar with tabs for Applications, Server Status, Network, Watchdog, MicroTCA List, MicroTCA Graphic, VME Crates, Timing, and Help. The main content area is titled 'System Status' and is divided into two main sections: 'FLASH' and 'Labs'.

**FLASH Section:**

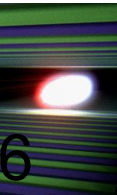
GROUP	Status	Company	Count
GROUP_CAMERA	off		
MINMCHKICKER1	show	ELMA Trenew Electronic GmbH	5
MINMCHKICKER2	show	ELMA Trenew Electronic GmbH	5
MINMCHKICKER3	off		
MINLIHUB4	off		
FLASHMCHKLY39	show	ELMA Trenew Electronic GmbH	5
MSKMCHACC1	show	ELMA Electronic GmbH	12
MSKMCHACC23	show	Schroff GmbH	12
MSKMCHACC67	show	Schroff GmbH	12
FLAMCHEOSTHZ	show	Schroff GmbH	6
FLASHMCHTIME1	show	ELMA Trenew Electronic GmbH	12
FLASHMCHG49	off		
FLASHMCHMPS1	off		

**Labs Section:**

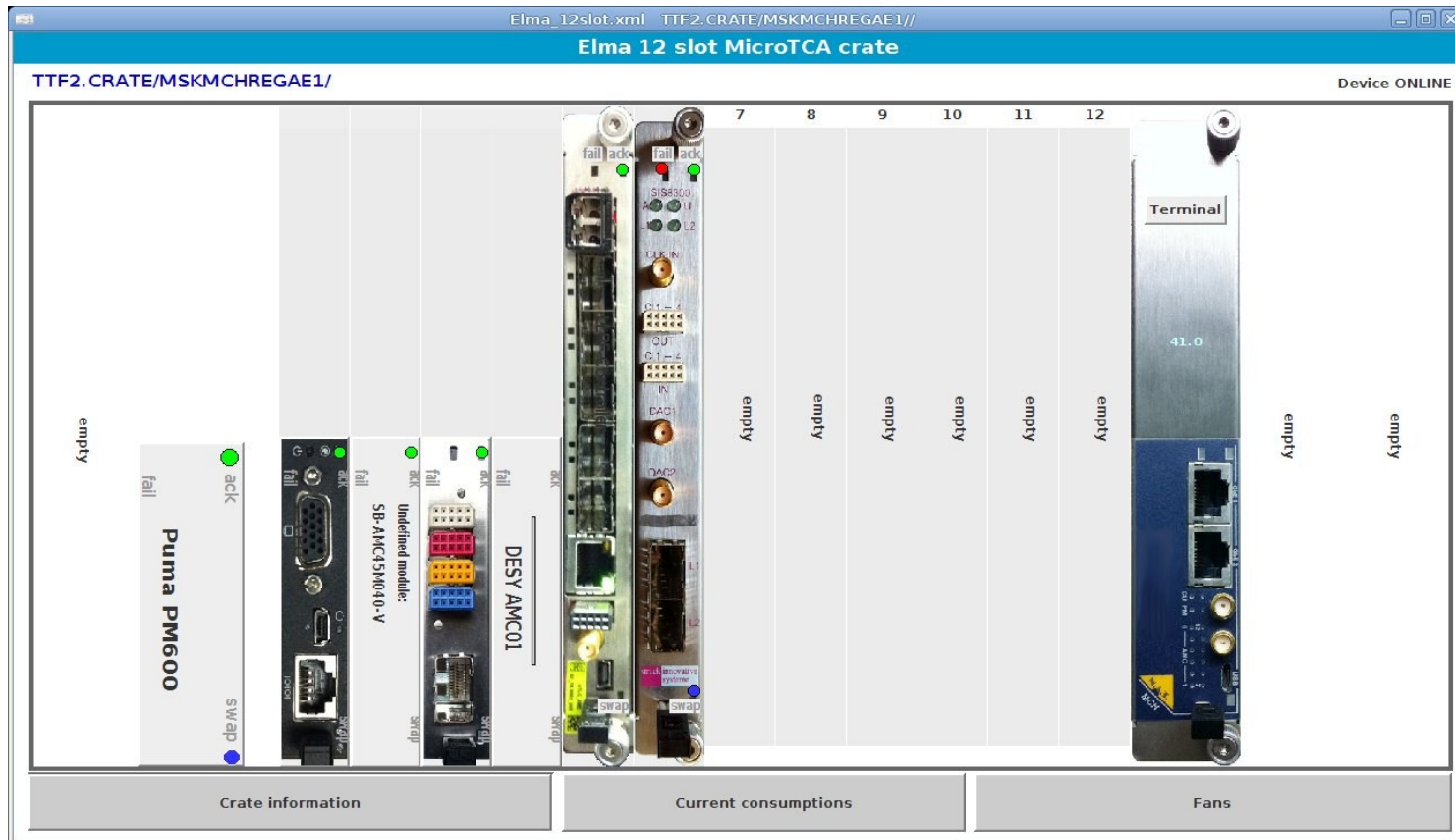
Lab	Status	Company	Count
MCSMCH1	show	Schroff GmbH	12
MCSMCH2	show	ELMA Trenew Electronic GmbH	5
MCSMCH3	off		
MCSMCH4	show	ELMA Trenew Electronic GmbH	12
MCSMCH5	off		
MCSMCH6	off		
MCSMCH7	off		
MCSMCH8	show	Schroff GmbH	6
MCSMCH9	show	Schroff GmbH	6
MCSMCHTIME1	show	ELMA Trenew Electronic GmbH	6
MCSTMCHIME1	show	ELMA Trenew Electronic GmbH	6
MCSMCHMPS1	show	ELMA Trenew Electronic GmbH	5
MHFSLXTCAMCH	show	Schroff GmbH	6

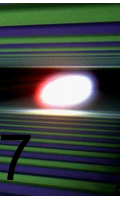
**Modules in selected crate: TTF2.CRATE/MSKMCHACC67/**

Module	Manufacturer	U=	Temp=	Info	Power
CRATE	Schroff GmbH			info	
COOL_UNIT1	Fan speed= 1980 1920 3120 3000		Temp= 24,0 22,0	info	
COOL_UNIT2	Fan speed= 0 0 0 0		Temp= 23,0 24,0	info	
AMC9	SIS8300 Struck Innovative Systeme GmbH	U= 1,8	Temp= 37,0	info	
AMC7	SIS8300 Struck Innovative Systeme GmbH	U= 1,8	Temp= 43,0	info	
AMC8	SIS8300 Struck Innovative Systeme GmbH	U= 1,8	Temp= 43,0	info	
AMC4	uTC DMCS	U= 2,5	Temp= 27,0	info	
AMC1	AMC-1000 ADLINK Technology	U= 11,6	Temp= 24,4	info	
AMC2	SB-AMC45M1... SANBlaze Technology, Inc.	U= 11,6	Temp= 22,0	info	
AMC3	TIMAMC-01 Stockholm University	U= 12,1	Temp= 34,0	info	
MCH	NAT-MCH V3.4, R100331	Current= 1,9	Temp= 26,0 34,0 28,0 48,0	info	
POWER_UNIT1	Puma PM900		Temp= 73,0 48,0	info	



## 12 slot ELMA MicroTCA Crate View





## MicroTCA crate information

The screenshot displays a software interface for managing MicroTCA crates. It features several windows and panels:

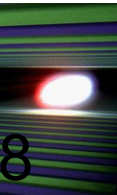
- System event messages:** A window on the left showing logs for 'ELMA Trenew ... xTCA-12 Std.' with messages like 'IPMB:0xc6 Sensor N:23 Type:Voltage Event:Lower Non-recoverable going low'.
- Elma 12 slot MicroTCA crate:** A central window displaying detailed information for a 'MicroTCA Crate' (xTCA-12 Std.).
- FRUinfoview.xml:** A window on the right showing a tree view of FRU information and a corresponding table.
- Hardware View:** A bottom panel showing a physical representation of the crate with components like 'Puma PM600' and 'AMC35M040-V'.

**MicroTCA Crate Information:**

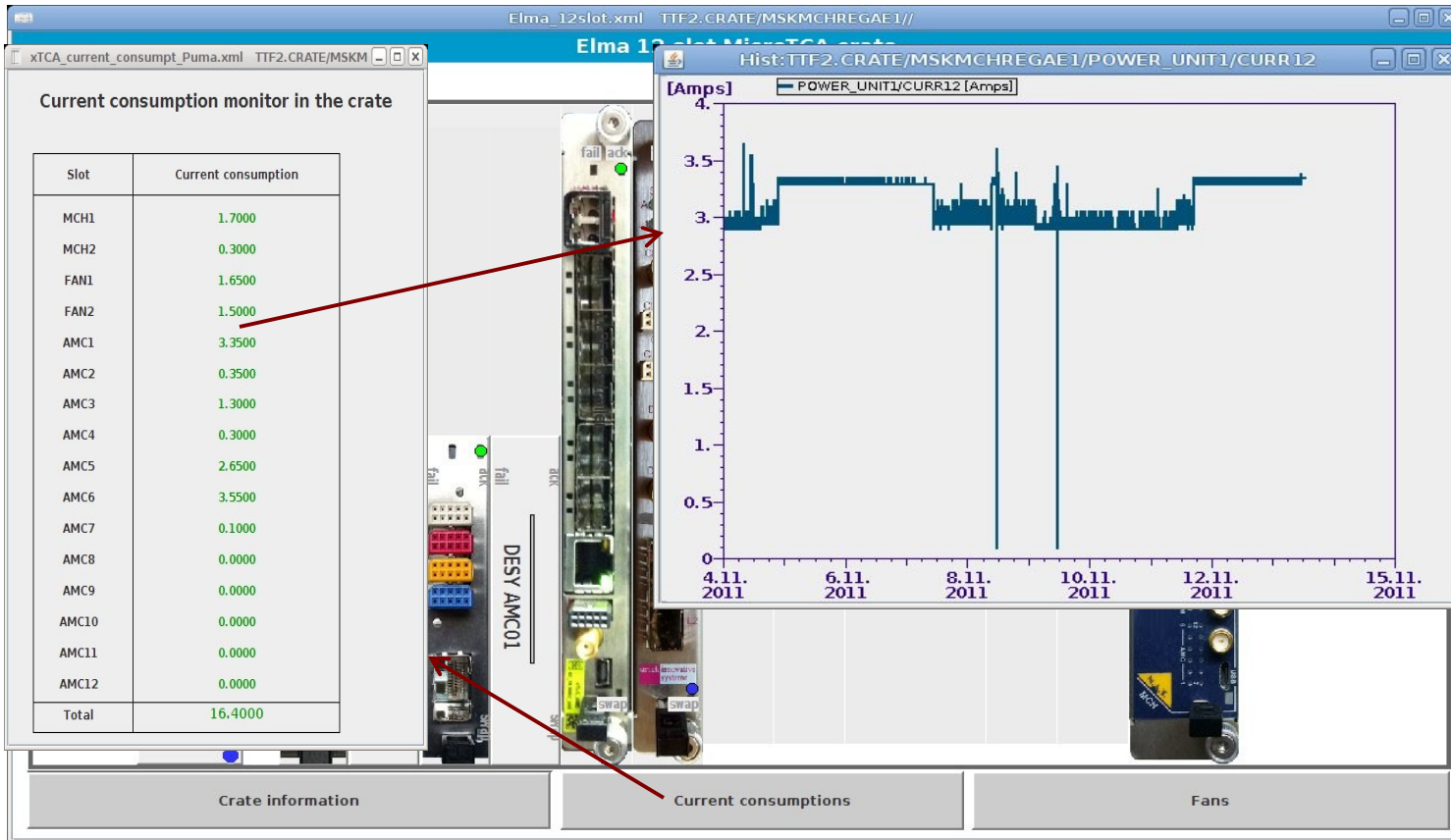
- Manufacturer: ELMA Trenew Electronic GmbH
- Production Date: Thu Feb 17 15:45:00 2011
- Serial Number: 10545690
- Partial Number: 039-362
- Version: Ind.A
- Power units: 1
- Cooling units: 2
- Slots: 12
- AMC modules: 6
- System event messages: 5

**FRU Information Table:**

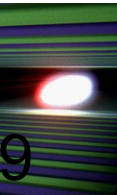
Name	Value
Manufacturer	ELMA Trenew Electronic ...
Name	xTCA-12 Std.
PartNumber	039-362
Version	Ind.A
SerialNumber	10545690
FRU ID	xxx.bin
Extra	



## Power monitoring of the crate







- AMC modules in crate

The screenshot displays the 'Elma 12 slot MicroTCA crate' interface. Two AMC modules are visible:

- Left Module (Slot 5):**
  - AMC Module:** LLRFCTL
  - DOOCS Adr:** TTF2.CRATE/MSKMCHREGAE1/AMC5/
  - Slot:** 5
  - IPMB Addr:** 122
  - FRU ID:** 9
  - Manufacturer:** DMCS
  - Production Date:** unavailable
  - Serial Number:** 01
  - Version:** 01
  - SENS...:** Device Absent
  - Sensors:** SENSOR2, SENSOR3
  - Temperatures:** Graph showing values between 30 and 44.
  - Voltages:** Graph showing values between 0.8 and 2.6.
  - Buttons:** Cold Reset, Warm Reset, Reboot.
  - Power:** Switch Payload Power (12V) ON/OFF.
- Right Module (Slot 6):**
  - AMC Module:** SIS8300
  - DOOCS Adr:** TTF2.CRATE/MSKMCHREGAE1/AMC6/
  - Slot:** 6
  - IPMB Addr:** 124
  - FRU ID:** 10
  - Manufacturer:** Struck Innovative Systeme GmbH
  - Production Date:** Wed Jul 27 02:00:00 2011
  - Serial Number:** 015
  - Version:** v2.0
  - Sensors:** SENSOR1, SENSOR2, SENSOR3
  - Temperatures:** Graph showing values between 40 and 46.
  - Voltages:** Graph showing values between 0 and 12.
  - Buttons:** Cold Reset, Warm Reset, Reboot.
  - Power:** Switch Payload Power (12V) ON/OFF.

Physical hardware is visible in the background, including a 'Terminal' panel and 'Fans'. The status 'Device ONLINE' is shown in the top right corner.