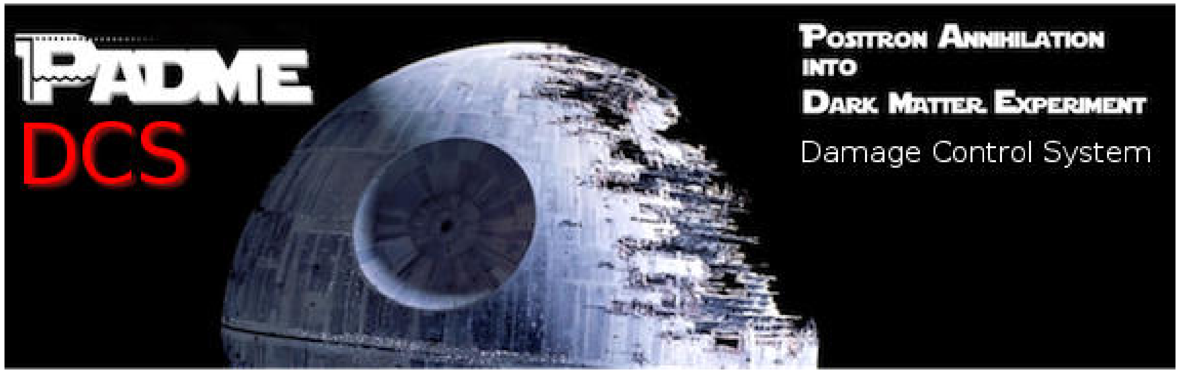


Padme dcs

By Simo/Svetlio from Sofia U. @ LNF

March 30, 2019

Partially supported by
BG-NSF DN 08-14/14.12.2016 & LNF-SU 70-06-497/07-10-2014

Goals and technology choice

Goals

- Easy to manage the experiment assets
  - Configuration
    - Version control
    - Validity
  - Operation conditions monitoring
  - Single point operations management
- “Easy” to write
- Easy to add features
- Adequate

Technologies

- Python3
- Bottle (https://bottlepy.org)
- SQL database and simple ORM
- Vue.js (https://vuejs.org/)

Deliverables

- Command module
- Monitoring and logging of operational data
- Web interface, alerts, emergency actions

Functionality detail

Configuration management:

- Default configuration/multiple versions
- Device configuration/multiple versions
- Device connections topology

Monitoring:

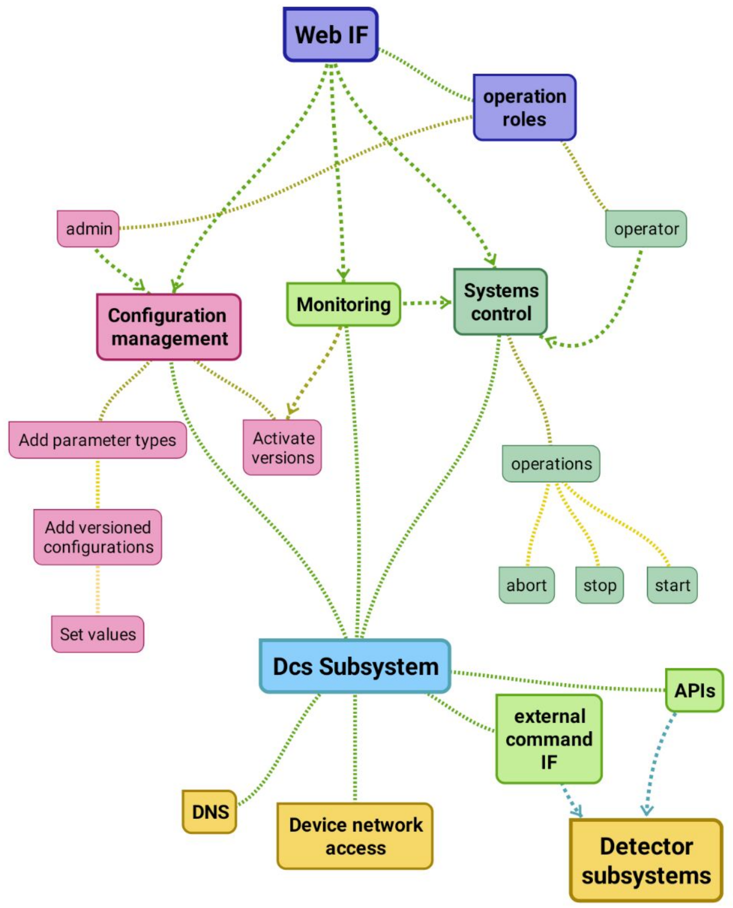
- Heartbeats
- Op conditions data collection and display
- Monitoring of parameter deviations
- Logging and reaction

Systems control:

- Interface with current text-based utilities or libraries

Access control:

- Users and roles



Architecture overview

Web service - UI

Configuration store (database)

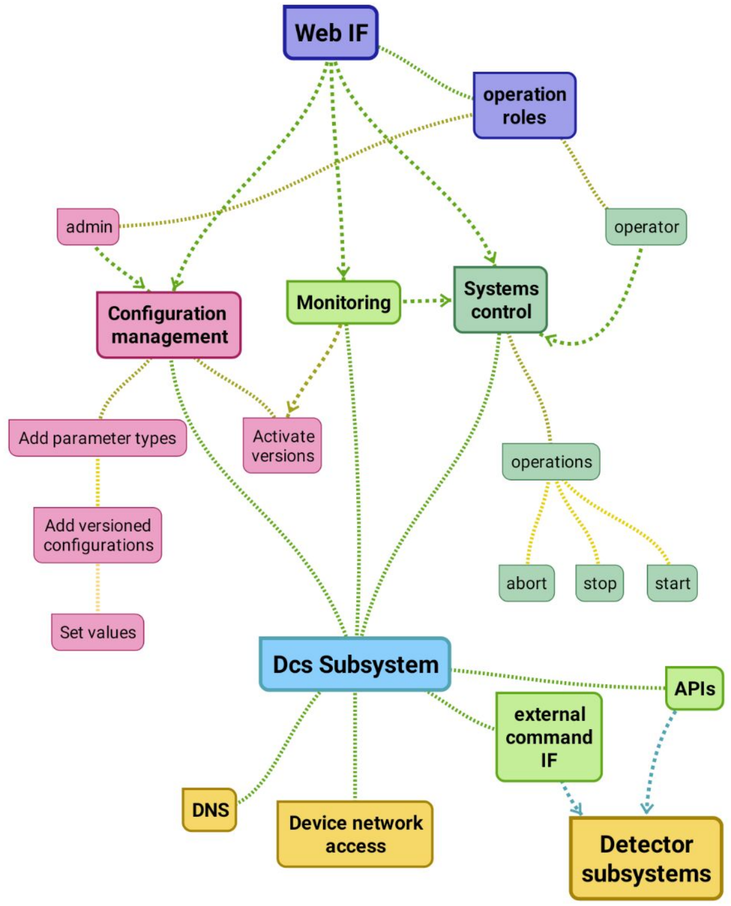
Operation parameters collection

Operation parameters monitor

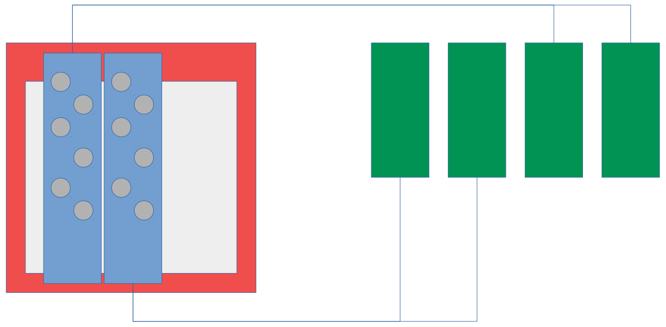
Command system

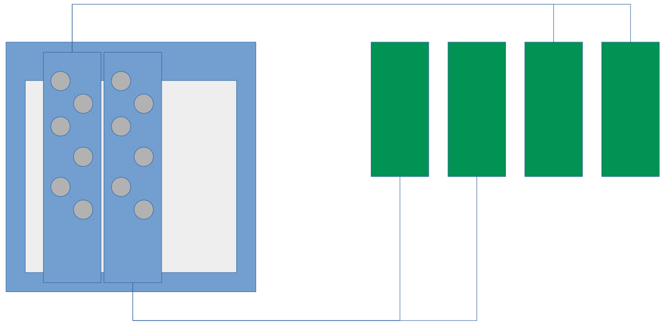
Dependencies

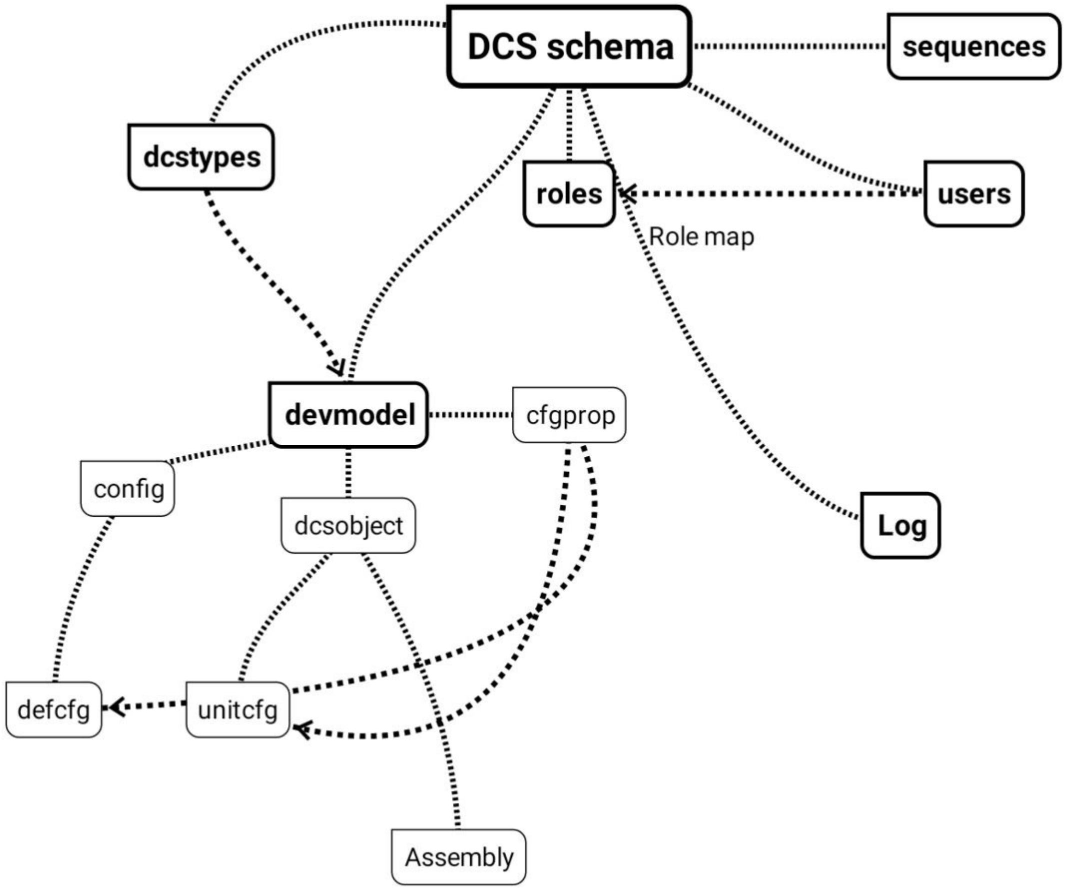
- Addressing schemes
  - General
  - Network
- Project APIs and utilities' interfaces



Database: user mgmt, device topology and configuration







Schedule

Plan

- User management
- Configuration system
- Command backend
  - A prototype working with at least one detector subsystem
- Monitor backend
  - A prototype working with at least one detector subsystem
- Some documentation (how to extend)

Complete system

- March 2019

Current status

Database & testing data

Complete structure, needs to be fleshed out and populated with real data

Backend

Assembled, tested and **fully operational** prototype, lacks the modules for the UI components and various backend tasks

UI libraries

Assembled, tested and **fully operational** prototype, lacks the UI components for the various detectors and command tasks

Basic App Structure

"One-page" app, complete proof of concept, needs maybe one or two UX iterations to complete

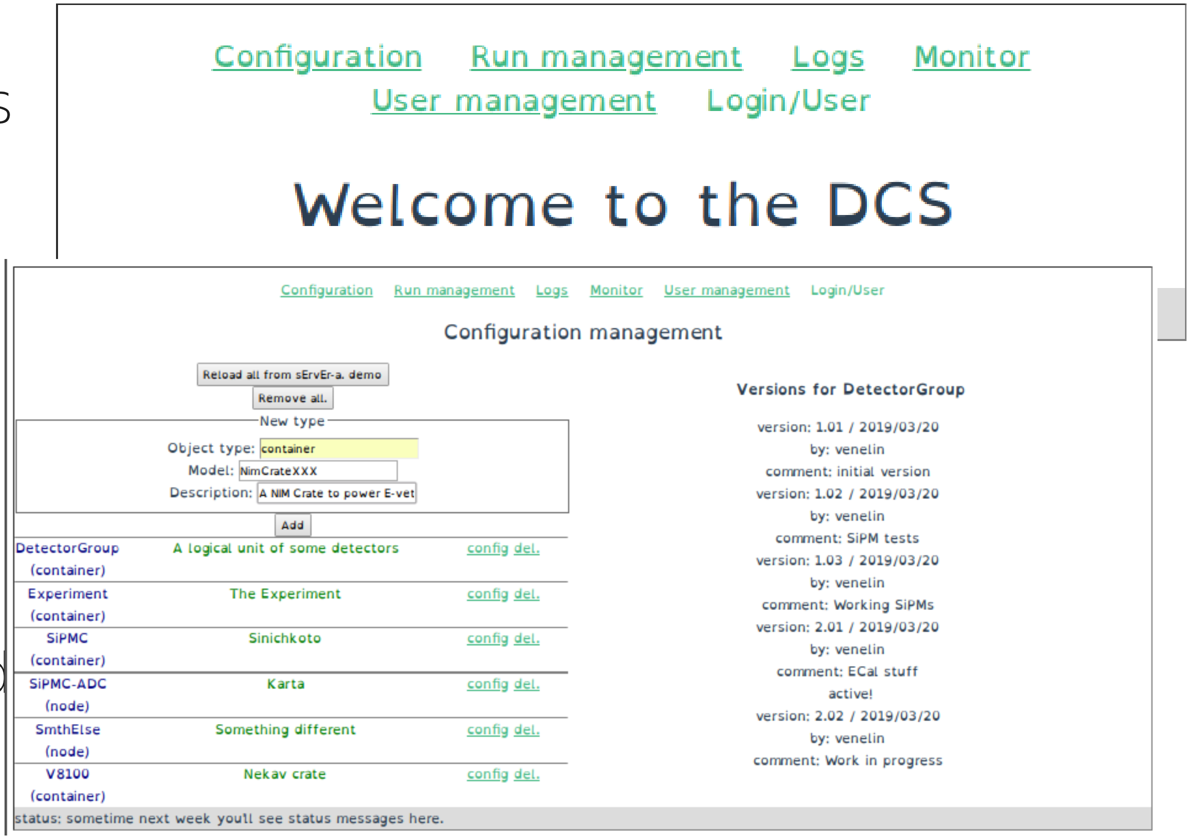
Components

Proof of concept for all **types** of components is ready, the real components must be developed

Some early screenshots

Tests of the approach and the selected technologies allow:

- Clear wizard-like workflows
- Coarse and fine-grained control of every accessible detector component
- Hierarchical views and searches
- Reports and log collection
- Automation of complicated tasks
- Monitoring, alerts, etc.



Welcome to the DCS

Configuration management

New type

Object type: container
Model: NimCrateXXX
Description: A NIM Crate to power E-vet

DetectorGroup (container)	A logical unit of some detectors	config del.
Experiment (container)	The Experiment	config del.
SiPMC (container)	Sinichkoto	config del.
SiPMC-ADC (node)	Karta	config del.
SmthElse (node)	Something different	config del.
V8100 (container)	Nekav crate	config del.

status: sometime next week youll see status messages here.

Versions for DetectorGroup

version: 1.01 / 2019/03/20
by: venelin
comment: initial version
version: 1.02 / 2019/03/20
by: venelin
comment: SiPM tests
version: 1.03 / 2019/03/20
by: venelin
comment: Working SiPMs
version: 2.01 / 2019/03/20
by: venelin
comment: ECal stuff
active!
version: 2.02 / 2019/03/20
by: venelin
comment: Work in progress

Some not so early screenshots

Tests of the approach and the selected technologies allow:

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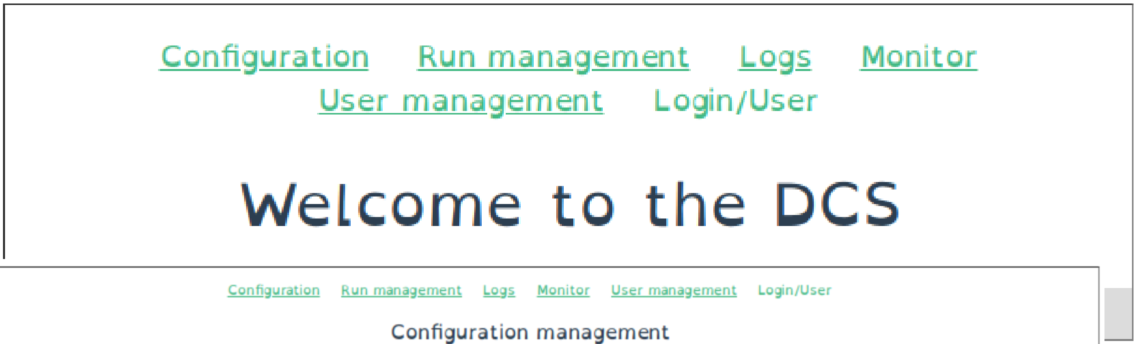
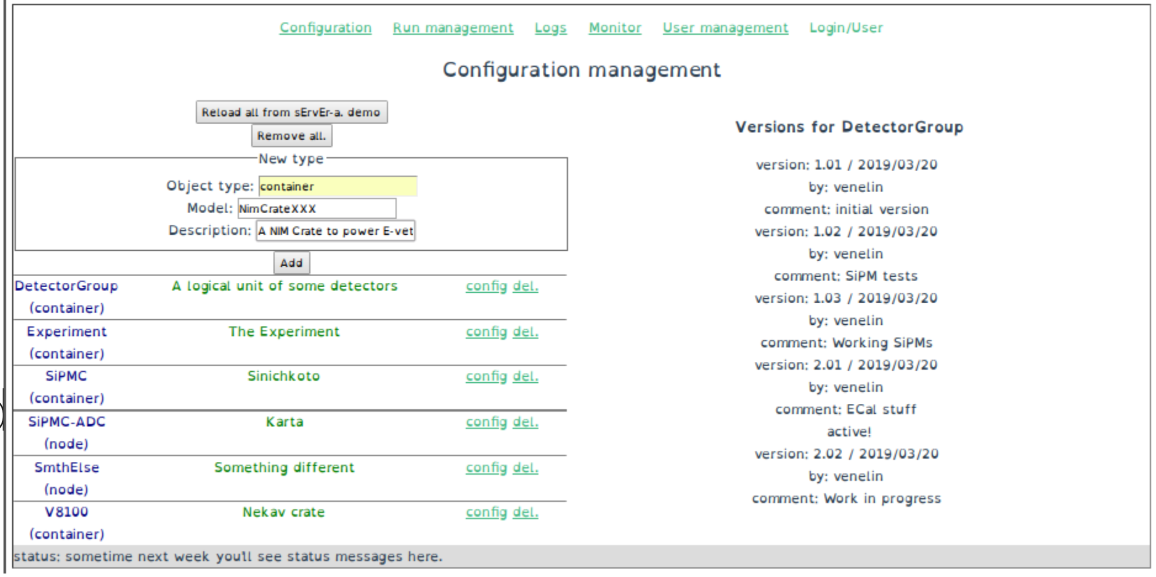


Welcome to the DCS



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Pending tasks and work effort estimate

Development tasks

Database - 20 - 30 hours

Data preparation - ?

UI Components - ~100 hours

Backend task managers for configuration
and dependency resolution ~50-100 hours

Logging and reports - ~50 hours

Integration tasks

Current configuration and command modules and monitoring ~
100 hours?