Configuration Management at ISIS

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Configuration Management

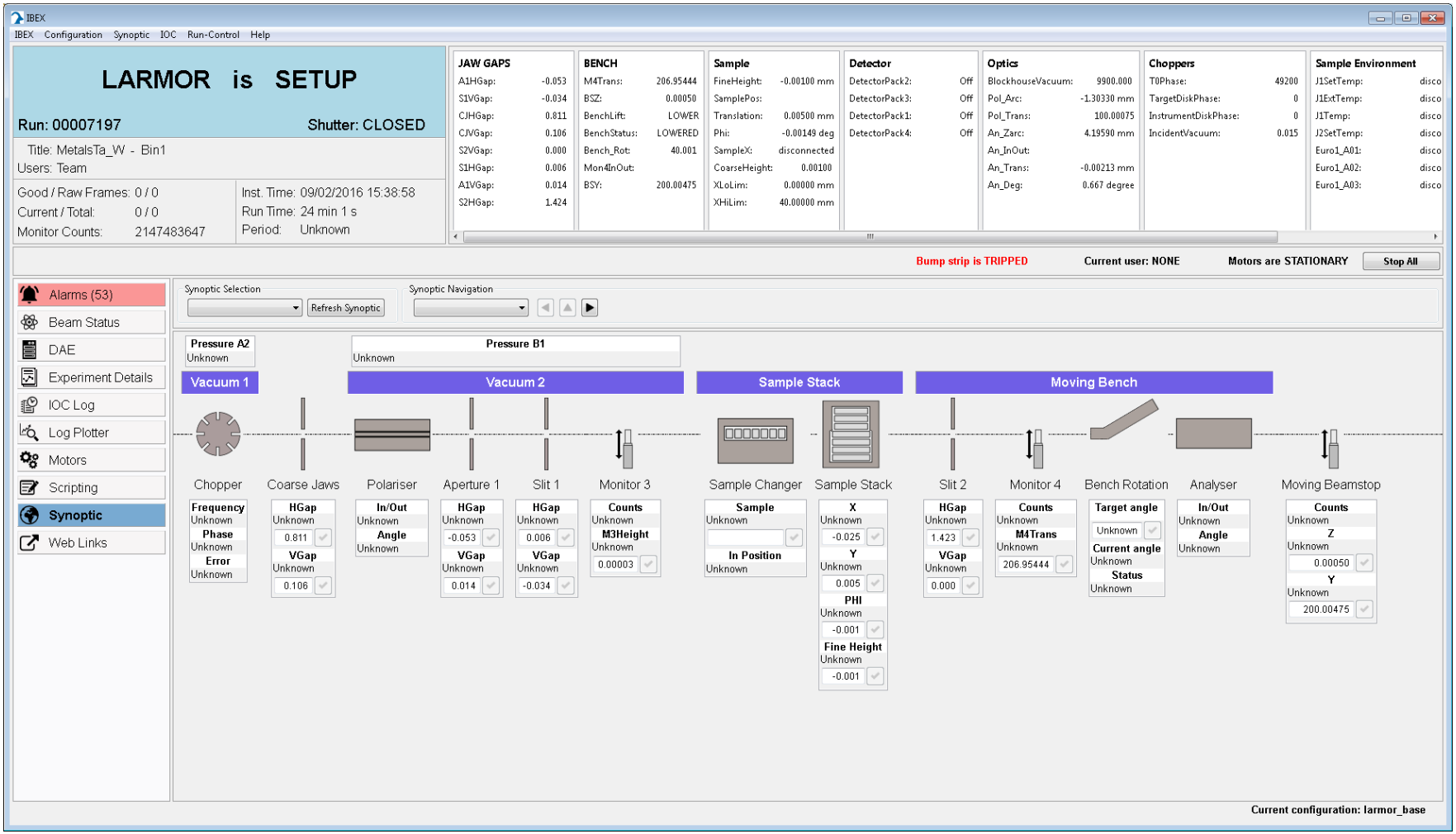
- Configuration here refers to experiment / beamline / instrument configuration
- More specifically to the software controlling devices currently present on the instrument
- We want to load:
  - The correct drivers for the available devices
  - Appropriate settings for these devices
- This process could be initiated manually or automatically (e.g. on boot)

EPICS Autosave

- Normally used for IOC boot time restore
  - Restores key PV settings
  - Does not usually cause record processing
- Also contains a utility called configMenu
  - Creates “manual save sets”
  - Can later restore a set of PV values (with record processing)
  - Similar to BURT tool

ISIS Configurations

- A configuration provides:
  - Which IOCs to start
    - Plus macros, and additional PV values to set
  - “Blocks” and “block groups”
    - Aliases for relevant experiment PVs
    - Also logging, run control limits
  - A default synoptic view
- Stored as XML files in folders on disk
  - Managed and served by “blockserver” process
  - Versioned in git



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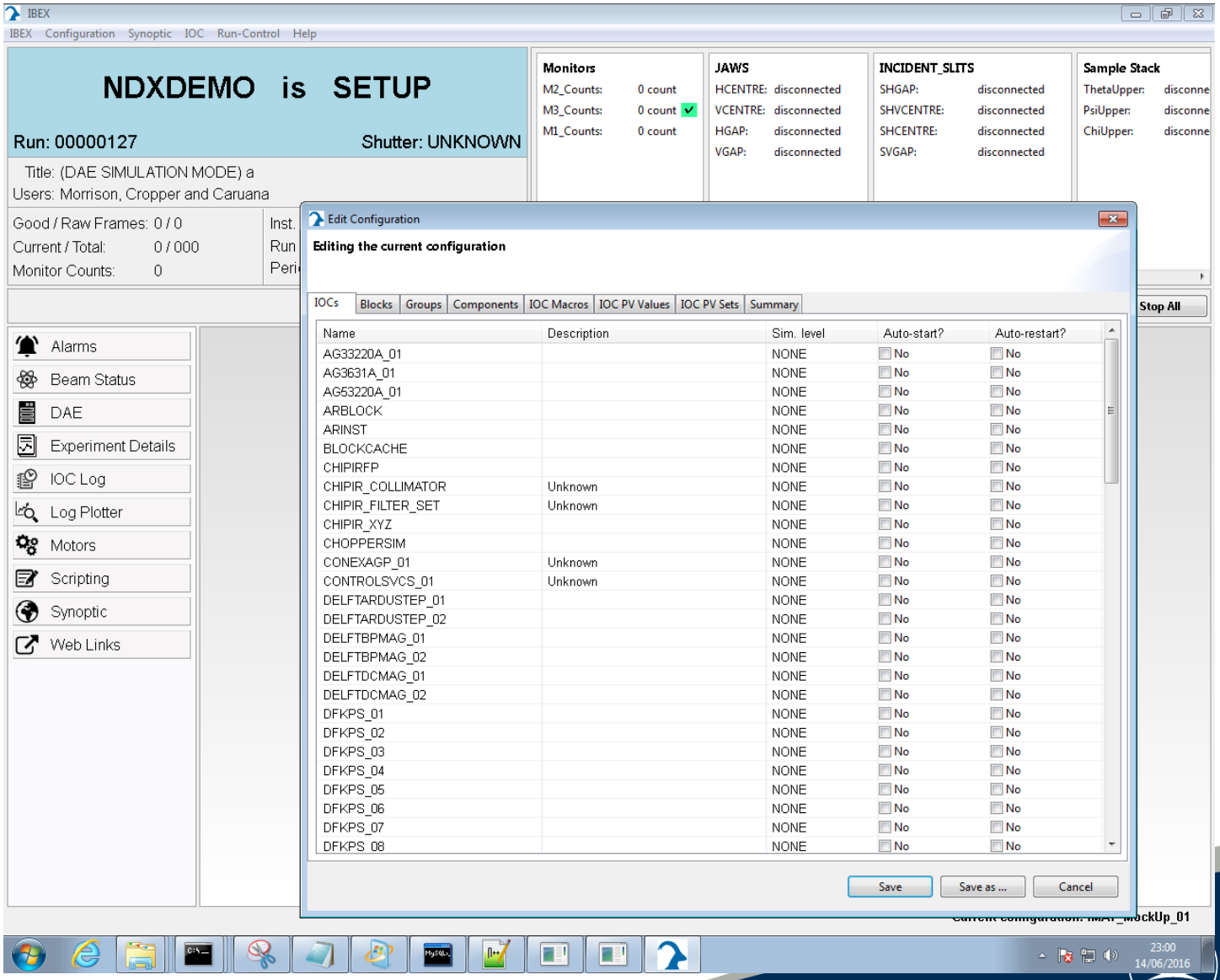
Components

- A configuration can include “components”
  - These are like mini-configurations
- An instrument’s equipment is composed of:
  - Fixed beamline devices (e.g. slits)
  - Variable experiment devices (e.g. cryostat)
- A particular configuration would contain:
  - A base fixed devices component
  - Additional movable equipment components

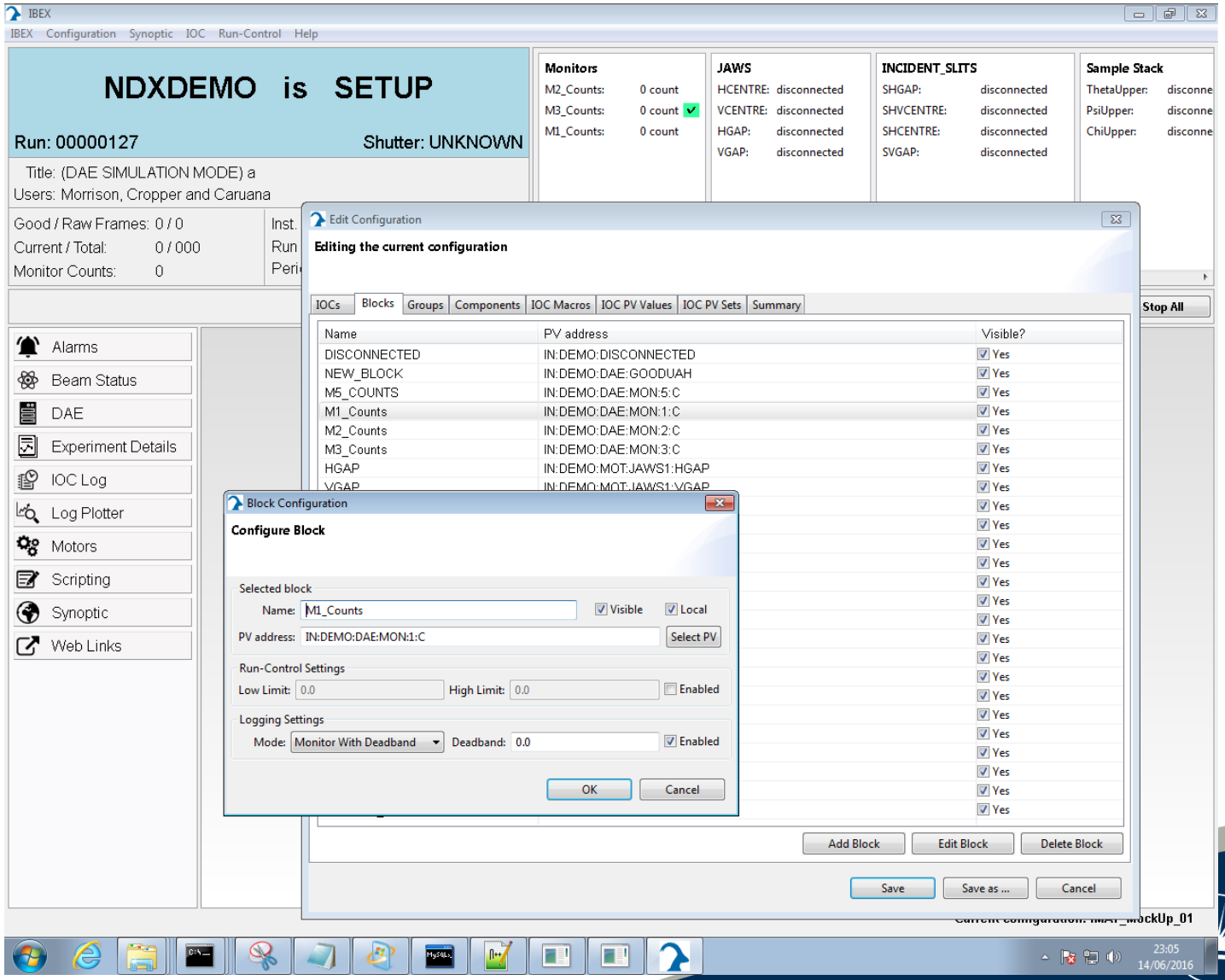
Implementation

- Each IOC has a config.xml file in its build area
  - Describes available macros and PV sets
  - All collated at build time, served to clients by blockserver process
- Clients create and edit configurations
  - Via interaction with blockserver process
- On boot all IOCs call a common “init.cmd”
  - Processes configuration, sets macros etc.

Configuring IOC Startup Options



Configuring Blocks



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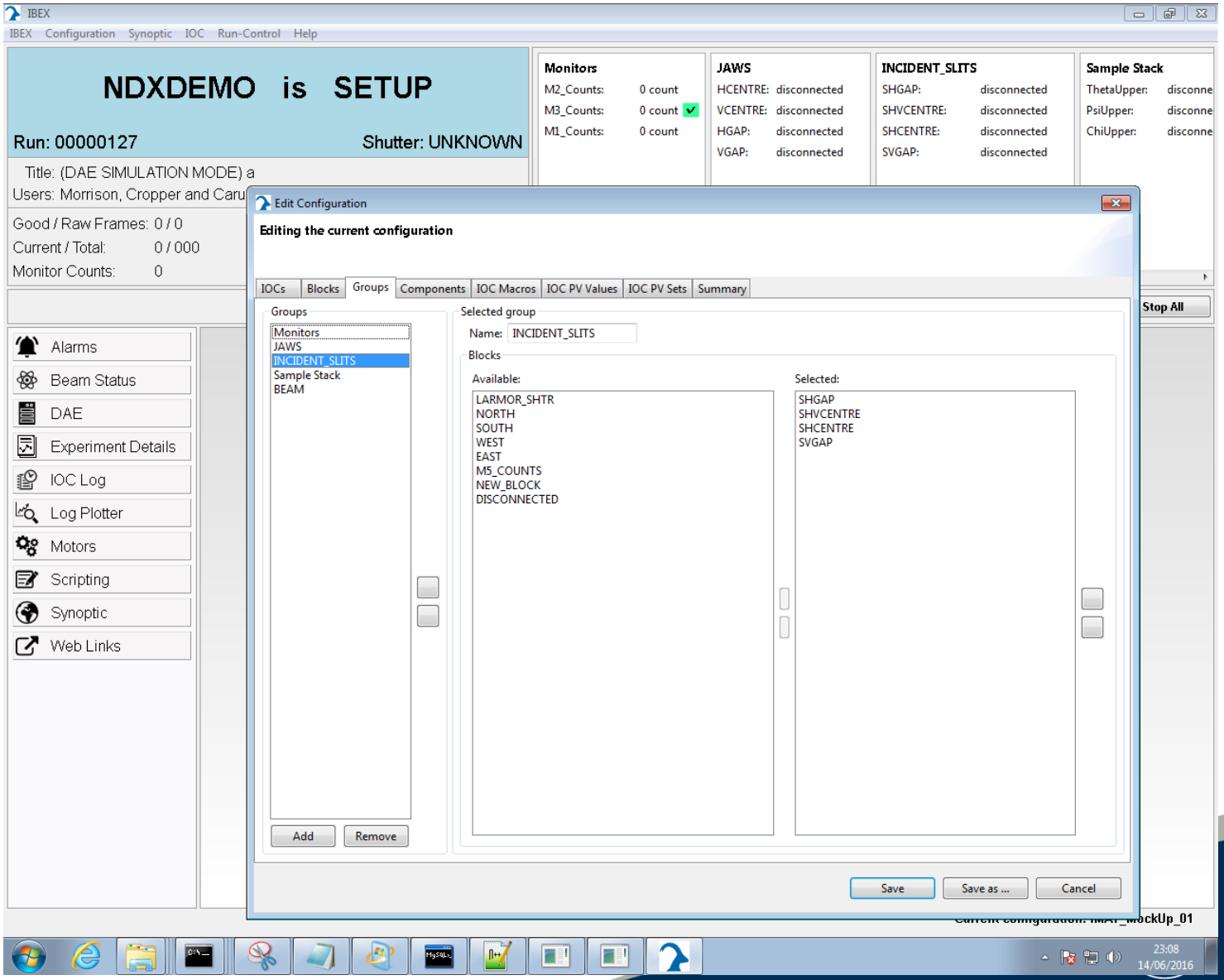
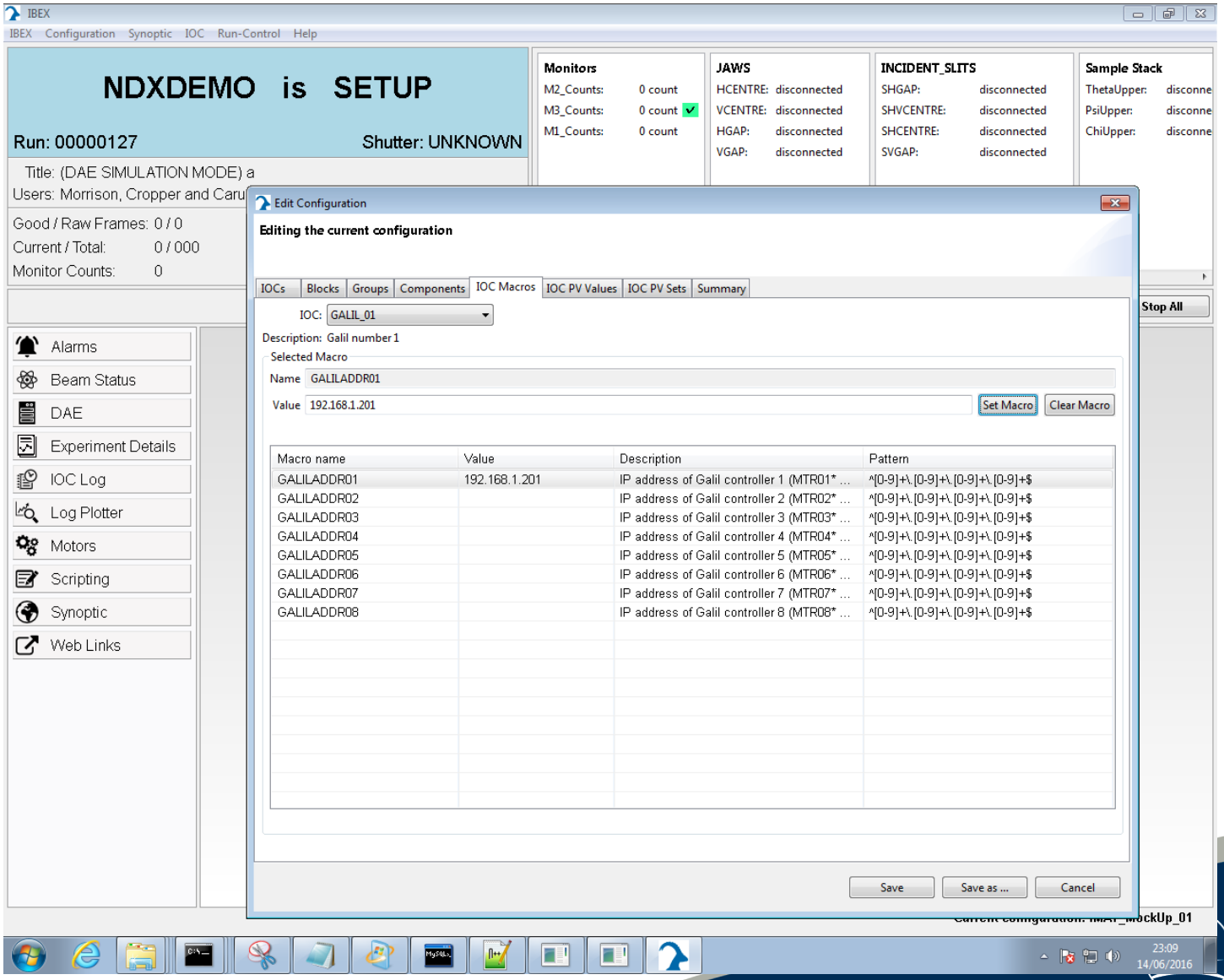
Configuring Groups



Configuring IOC Macros



Future Work

- Make PVsets easier to use
  - Look into using configMenu functionality
- Move some autosave settings into components
  - e.g. motor record parameters
  - Particular use case for motor soft limits
- Configurations for ESS in-kind work