



Reporte de Actividades

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Activities Carried Out

Report of the DCS Archive Simulator



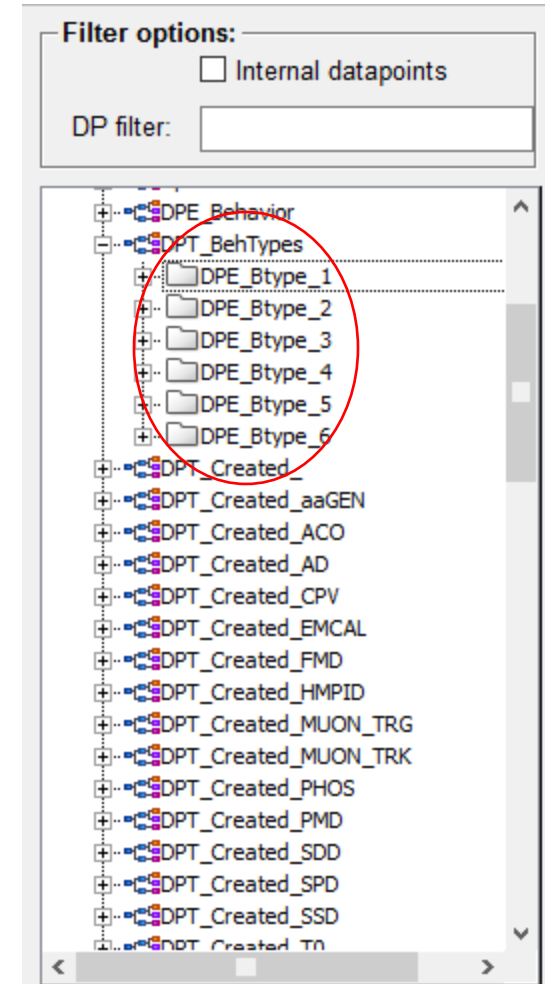
Generation of the specified DPEs by type to a detector

Creation, definition and initialization of the DPT, DP and DPI behavior by type in a user panel

Defining behavior conditions

Classification of DPEs by types: by detector or general:

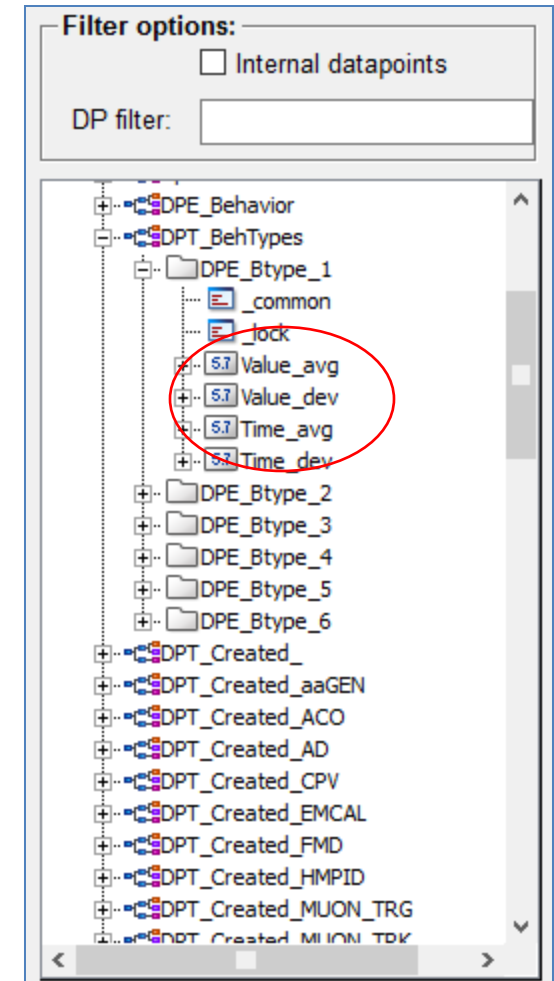
Description of the DPEs types	DPs
<i>HV Voltage</i>	DPE_Btype_1
<i>HV Current</i>	DPE_Btype_2
<i>LV Voltage</i>	DPE_Btype_3
<i>LV Current</i>	DPE_Btype_4
<i>Temperature sensors</i>	DPE_Btype_5
<i>Pressure Sensors</i>	DPE_Btype_6



Defining behavior conditions

Parameters to define behavior conditions of the DPs of each type:

Parameters of behavior conditions	DPs
<i>Average nominal value of the DPEs types</i>	Value_avg
<i>Percentage of deviation of the nominal value</i>	Value_dev
<i>Average time of sending to the DCS archiving</i>	Time_avg
<i>Percentage of deviation of the sending time to the DCS archiving</i>	Time_dev



Defining behavior conditions

Data Point Types (DPT)

- **DPT_BehTypes** (*Behavior panel*) => **DPT**

DP:

DPE_Btype_1

.

.

.

DPE_Btype_6

DPE:

Value_avg

Value_dev

Time_avg

Time_dev

DPT_BehTypes

- DPE_Btype_1**
- DPE_Btype_2**
- DPE_Btype_3**
- DPE_Btype_4**
- DPE_Btype_5**
- DPE_Btype_6**

Value_avg
Value_dev
Time_avg
Time_dev

Value_avg
Value_dev
Time_avg
Time_dev

Value_avg
Value_dev
Time_avg
Time_dev

Value_avg
Value_dev
Time_avg
Time_dev

Value_avg
Value_dev
Time_avg
Time_dev

Value_avg
Value_dev
Time_avg
Time_dev

Entering the behavior conditions using a user interface

Behavior Definition Panel

DPEs Types	DPEs Average Value		Average Period of sending to the DCS Archive	
	Value	Deviation [%]	Time [sec]	Deviation [%]
Voltage - HV	<input type="text" value="1000"/> V <input type="button" value="OK"/>	<input type="text" value="1"/> <input type="button" value="OK"/>	<input type="text" value="20"/> <input type="button" value="OK"/>	<input type="text" value="0.05"/> <input type="button" value="OK"/>
Current - HV	<input type="text" value="200"/> uA <input type="button" value="OK"/>	<input type="text" value="0.5"/> <input type="button" value="OK"/>	<input type="text" value="15"/> <input type="button" value="OK"/>	<input type="text" value="0.06"/> <input type="button" value="OK"/>
Voltage - LV	<input type="text" value="6"/> V <input type="button" value="OK"/>	<input type="text" value="0.6"/> <input type="button" value="OK"/>	<input type="text" value="8"/> <input type="button" value="OK"/>	<input type="text" value="0.02"/> <input type="button" value="OK"/>
Current - LV	<input type="text" value="100"/> mA <input type="button" value="OK"/>	<input type="text" value="0.1"/> <input type="button" value="OK"/>	<input type="text" value="5"/> <input type="button" value="OK"/>	<input type="text" value="0.03"/> <input type="button" value="OK"/>
Temperature Sensors	<input type="text" value="35"/> °C <input type="button" value="OK"/>	<input type="text" value="0.2"/> <input type="button" value="OK"/>	<input type="text" value="10"/> <input type="button" value="OK"/>	<input type="text" value="0.2"/> <input type="button" value="OK"/>
Pressure Sensors (°C)	<input type="text" value="50"/> °C <input type="button" value="OK"/>	<input type="text" value="0.5"/> <input type="button" value="OK"/>	<input type="text" value="2"/> <input type="button" value="OK"/>	<input type="text" value="0.5"/> <input type="button" value="OK"/>

Definition of the nominal values and sending times to the DCS archiving of the DP's by Type

Algorithm to generate random values

- Developing a nominal function to generate random nominal values (**Value_F**) and random times (**Time_F**) of the DPEs using:
 - *Average nominal values of the DPEs types (Value_avg) and their deviations (Value_dev)*
 - *Average times of sending to the DCS archiving (Time_avg) and their deviations (Time_dev).*



ACO

nDPE_Type_1
(nDPE1)

DPE_ACO_1
...
DPE_ACO_M

nDPE_Type_2
(nDPE2)

DPE_ACO_1
...
DPE_ACO_N

nDPE_Type_3
(nDPE3)

DPE_ACO_1
...
DPE_ACO_O

nDPE_Type_4
(nDPE4)

DPE_ACO_1
...
DPE_ACO_P

nDPE_Type_5
(nDPE5)

DPE_ACO_1
...
DPE_ACO_Q

nDPE_Type_6
(nDPE6)

DPE_ACO_1
...
DPE_ACO_R

Creation, definition and initialization of the number of DP's by type in a user panel

Entering the DPEs Number by type

- Two types of simulations are defined:
 - **ALICE Detectors:** Specifying the DPEs number by type in each detector.
 - **General Form:** Entering a specific number of DPEs by type with no detectors defined.

Entering the DPEs Number by type

- ALICE detectors included in the simulation:

ALICE detectors		
ACO	MUON TRK	TOF
AD	PHOS	TRD
CPV	PMD	TPC
EMCAL	SSD	V0
FMD	SPD	ZDC
HMPID	SDD	
MUON TRG	T0	

Entering the DPEs Number by type

Defining the number of DP's by detector and general form

Selecting the detector

Simulator Main User Panel

Detectors

- ACO
- AD
- CPV
- EMCAL
- FMD
- HMPID
- MUON TRG
- MUON TRK
- PHOS
- PMD
- SSD
- SPD
- SDD
- T0
- TOF
- TRD
- TPC
- V0
- ZDC

DPs Types

Voltage (HV)	10
Current (HV)	10
Voltage (LV)	10
Current (HV)	10
Temp Sensors	10
Press Sensors	10

Number of DCS Archiving

Assign values per detector


Assign general values

Settings of Behavior Conditions

Simulation Type

- Detector by detector
- Direct

Trending plot



Entering the Number of DP's by type

Simulator Main User Panel

Detectors

- ACO
- AD
- CPV
- EMCAL
- FMD
- HMPID
- MUON TRG
- MUON TRK
- PHOS
- PMD
- SSD
- SPD
- SDD
- T0
- TOF
- TRD
- TPC
- V0
- ZDC

DPs Types

Voltage (HV)	10
Current (HV)	10
Voltage (LV)	10
Current (HV)	10
Temp Sensors	10
Press Sensors	10

Number of DCS Archiving

Total of DPE: 60
GEN [1]: 484
GEN [2]: 488
GEN [3]: 489
GEN [4]: 494
GEN [5]: 484
GEN [6]: 490
GEN [7]: 483
GEN [8]: 487
GEN [9]: 484
GEN [10]: 485
GEN [11]: 483

Assign values per detector CONFIRMATION

Assign general values CONFIRMATION

CLOSE PANEL

Settings of Behavior Conditions OPEN

Simulation Type

- Detector by detector
- Direct

START SIMULATION

Trending plot

Income button
of DPEs
number by
detector

Income button
of DPEs
number of
general form

Entering the Number of DP's by type

Data Point Types (DPT)

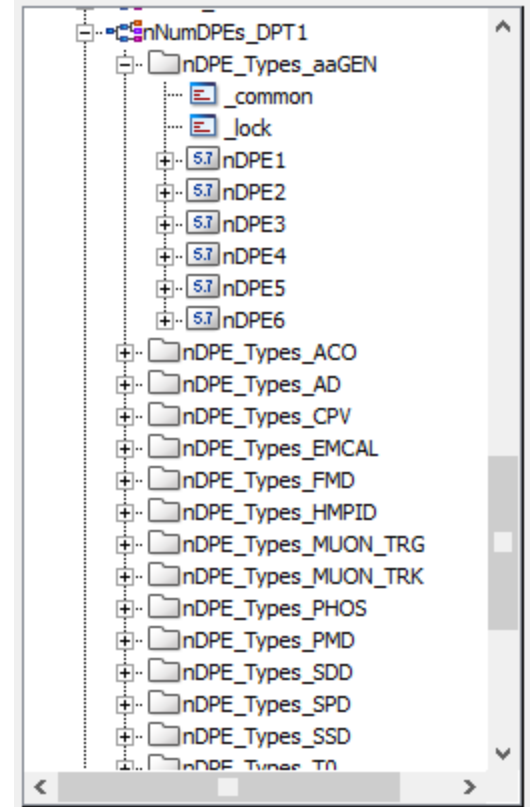
- nNumDPEs_DPT1 (*Main panel*) => **DPT**

DP:

nDPE_Types_aaGEN
nDPE_Types_ACO
.
.
nDPE_Types_ZDC

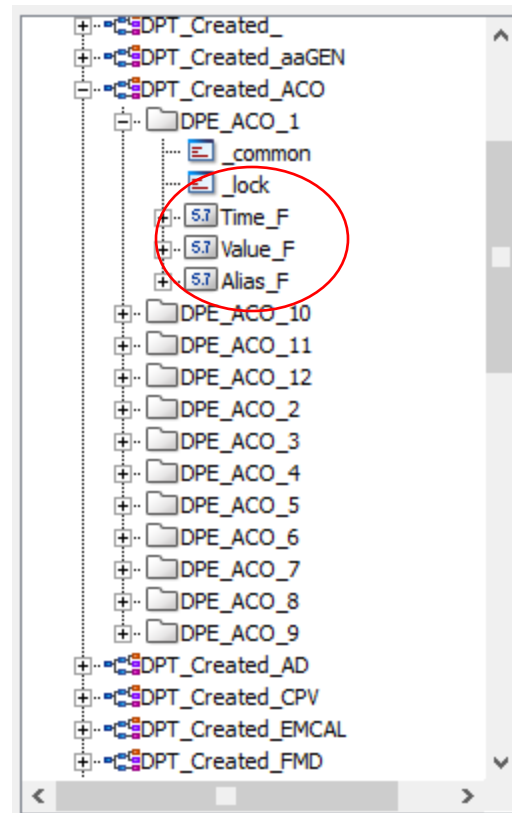
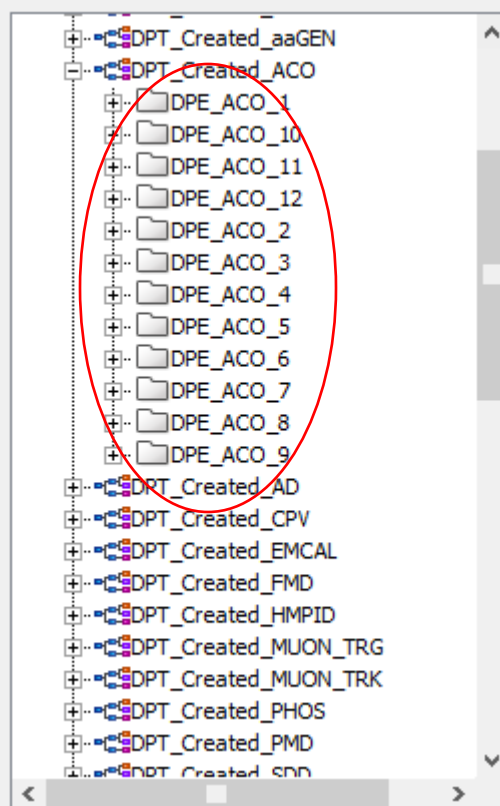
DPE:

nDPE1
.
.
.
nDPE6



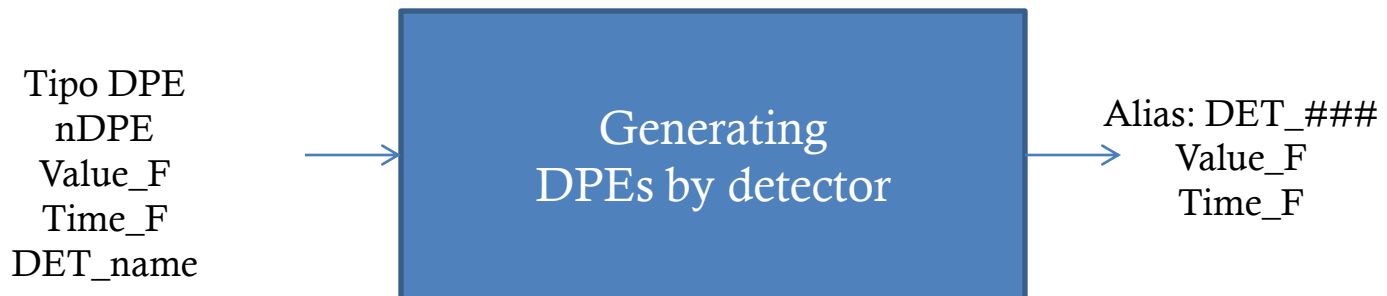
Entering the DPEs Number by type

- Examples of generated DPs / DPs for simulation in WinCC OA:



Algorithm to generate DPEs by detector

- Develop a function to add the following elements to the DP's:
 - Alias
 - Random nominal value (**Value_F**)
 - Random time value (**Time_F**)



Results Panel (General)

Generated DCS Archiving



Results for a general run

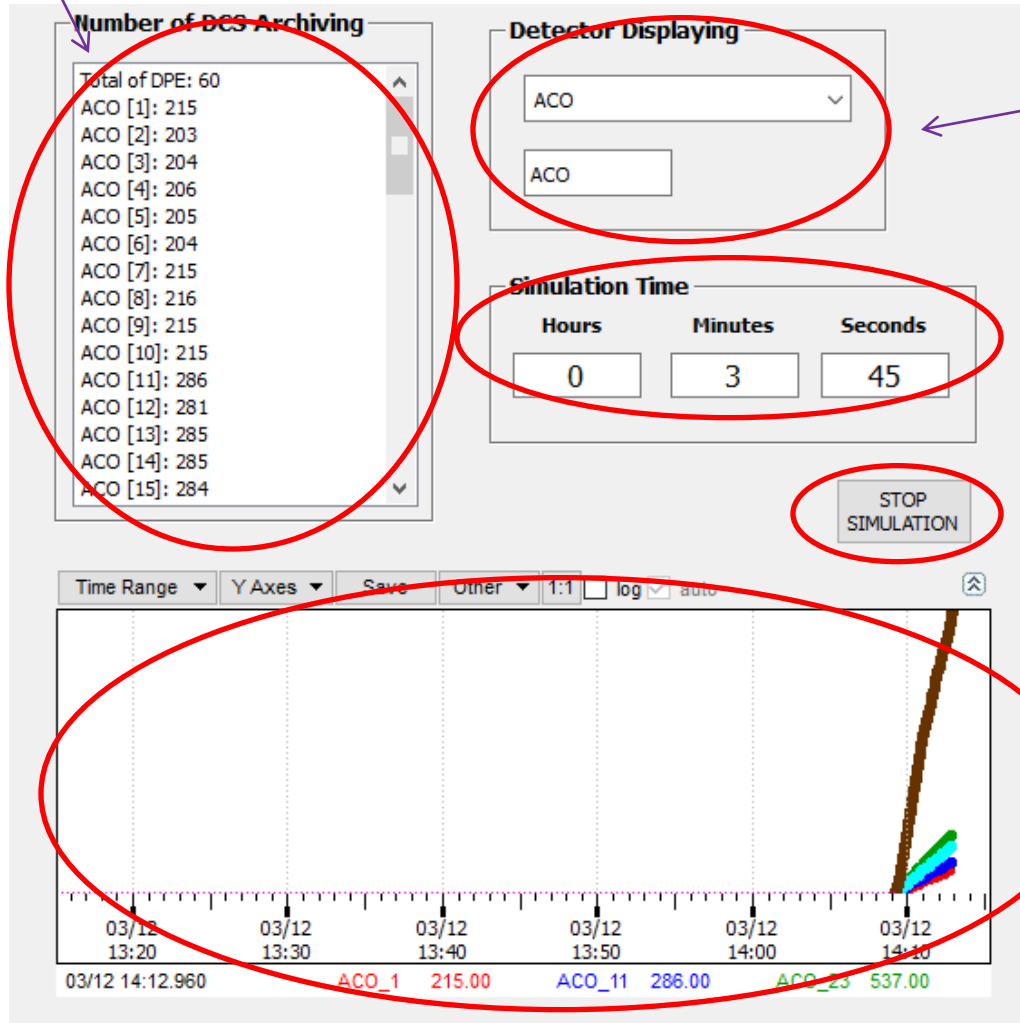
Simulation time of a run

Stop Simulation Button

Simulation Plot

Results Panel (Detectors)

Generated DCS
Archiving



Results for a detector
run

Simulation time

Stop Simulation Button

Simulation Plot

TODO

- Agregar dos nuevos tipos de DPs (discreto) en la simulación.
- Especificar las características de comportamiento de los tipos de DPs para cada detector en particular.