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UCAP: A FRAMEWORK FOR ACCELERATOR CONTROLS DATA PROCESSING @ CERN

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CERN



UCAP = Unified Controls Acquisition and Processing

MOPV039

Tackles "Acquisition - Transformation - Publishing/Presentation" use cases





Generic Framework for Online Data Processing



CERN



Acquiring and grouping inputs from several data sources

Declarative configuration

10 reusable data acquisition algorithms

Handles errors such as: source is not available, signal is late



```
"type": "GroupTriggeredCycleStampGrouped",
"triggerGroup": {
    "subscriptions": [
    {
        "parameter": "PSB.MAGNET.1/Acquisition",
        "selector": "PSB.USER.ALL"
    },
    {
        "parameter": "PSB.MAGNET.2/Acquisition",
        "selector": "PSB.USER.ALL"
    }
    ],
    "timeoutMs": 1000
},
"bufferedSubscriptions": [
    {
        "parameter": "LSA.DEVICE/Setting"
    }
]
}
```

This definition will make UCAP to synthesise an event builder grouping data from the PSB.MAGNET.1/Acquisition and PSB.MAGNET.2/Acquisition parameters by cycle stamp.

The timeoutMs field specifies maximum how long the event builder should wait for data from all devices — if data is missing, a partial event is fired containing only the inputs which arrived on time.

The bufferedSubscription part is an optional place to specify other inputs which are needed by the transformation, such as LSA settings.





\$ ucap	-cli							
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help			COM	command help				
Node								
node-discover				Discovers UCAP nodes (note: already done o				
node-list				Lists UCAP nodes (alias: nl)				
node-select				Selects a UCAP node to work with (alias: n				
	de-update		Upda	ates a node				
Devi								
	vice-create			ates/updates de				
device-delete				Deletes devices from the selected node				
	vice-downlo	bad		nloads device d				
	vice-list			s/filters devi				
device-reload				Reloads devices on the selected node Shows detailed information for a device (a				
	vice-show							
device-start				Starts devices on the selected node				
	vice-stop			os devices on t				
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Scalable Self-Service Model

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node UCAP-NODE-FD-CONCI	ENTRATOR - device CPS.FIXDISPI	LAY.CONCENTRATOR ~				
displays direct links to the issu For new devices it takes a few	iew of the selected UCAP device. First sel es/metrics API of the device's transforma minutes until data is displayed on the das top-left of each panel to view the panel's	ations. shboard.	to inspect. By clicking on the issues/disco	rded events, a popup m		
Total Values Published	Total Errors Published	Issues (Acquisition)	Discarded events	(Acquisition)		
0720701			Total number of Events and timed out Events produced by all of the node's event builders.			
30 20 10 0 05:00 06:00	Incoming Subscriptions	20	der Rate (Events produced from Incoming	Subscriptions) >		
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0 05:00 06:00	07:00 08:00 09:00	05:00	06:00 07:00 08:00 I / sec (CPS.FIXDISPLAY.CONCENTRATOR/Acqui:	09:00 10:00 sition)		



Rich CLI

Automagically Populated Dashboards



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