Production Operation Management System



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Why the Need

Large scale computing of month-long production and analysis and Monte Carlo leads to the need for improved tracking of computing progress.

POMS is a project designed to provide a service to assist production teams and analysis groups of experiments in their MC production and data processing. As the quantity of data originated by the running experiments greatly increases, the ability of simplifying the steps in data processing and management has become more and more appealing to the users.

What is **POMS**

- A service to assist production and analysis of experiments in their MC production and data processing.
- A web service interface, enabling automated jobs submission on distributed resources according to

POMS a Successful Product

The success of POMS can be seen by its acceptance and continued usage by experiments.



customers' requests and subsequent monitoring and recovery of failed submissions, debugging and record keeping.

The ultimate goal is the most efficient utilization of all computing resources available to experiments, while providing a simple and transparent interface between users and the complexity of the grid.

Campaign Management

All Campaigns, production & analysis, are viewed and managed from the same page

Active Inactive	1	✔ Mi ✔ Ot	 ✓ Mine ✓ Others 				Analysis Production 				Update View			
Mark Campaign Active/Inactive 🗞 Tag/untag Campaigns 🖸 Add Pick Ini file and 🕰 Upload														
Select All	Campaign Name	id 🗘	Active 🗘	Submis- sions O Running	Submis- sion History	Launch	Depend- encies	GUI Editor	Clone Campaign	.ini File	Tags 🗘	Rename Campaign	Delete Campaign	Creator
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	patch_metadata_hv_values	3245	Yes	1		4	a.		2			=	0	dingpf
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Actions on Campaigns depend on the users Privileges.

Superusers can start, stop and edit all campaigns.

POMS Campaigns

How is POMS organized

Operations Management System	Job Launch	▲ Stephen White dune ♥ production ♥			
Obtaining a POMS Account POMS Access is suppled through FNAL services accounts. The account must be registered in FERRY as analysis, production or superuser. If an account does not have access or needs a different level of access, follow the steps in the help link below.	Creating a Campaign We recommend creating using the campaign editor. A new campaign can be created from the Campaigns page with the add button or cloning and modifying exiting ones. For an understanding on how to do this please read the user documentation in the provided help link.	Monitoring POMS provides monitoring through Landscape and internal graphs. All job related information is available in Fifemon. Internal charts exists to track campaigns. These are available when viewing a specific stage.	Debugging Constraints of the stage is launched. They are accessable from the 'Campaign Stages' by viewing the details of that stage.		
Ð	Θ	Efficency	Ð		
POMS Statistical Overview	Fife_Utils POMS utilizes fife_launch and fife_wrap from the Fife_Utils tool set. This provides a set of commands and interfaces with JOBSUB passing the parameters needed to run the jobs. Details of this can be found in the the help link below.	FifeMon Fifemon gathers information from many different sources and graphs it on a common timeline to help experiments understand their computing usage and identify problems.	SAM is a data handling system organized as a set of servers which work together to store and retrieve files and associated metadata, including a complete record of the processing which has used the files.		
Overview	Θ	Overview Shifter	Status Wik		
Jobsub 🔅	dCache 🛟				
Jobsub is a suite of tools to manage batch/grid submission. These tools are designed to simplify the job submission process by defining interfaces for experiments, integrating grid tools, experiments, experiments	dCache is disk caching software capable of massive data throughput. It stores and retrieves large amounts of data, distributed among a large number of heterogeneous disk server nodes.				

Poms has managed over 9.8 million production jobs in the last Usage has doubled in the last year. year alone.

POMS Clients



"DUNE is currently using POMS for all official large-scale production processing. DUNE has a very positive interaction with the developers and appreciates their willingness to incorporate DUNE's requirements."

"POMS is very useful especially in terms of tracking job status and debugging failures. This feature can be also very beneficial not only for μBooNE production team but also for the analyzers. POMS simplifies running and managing production jobs. It is also helpful in bookkeeping your past jobs: you can always go back and check your workflows you had in the past."



"I find POMS to be an essential tool for managing and running a large-scale production. Its ability to monitor a workflow stage, catch and resubmit failed jobs and then automatically trigger the downstream dependencies via its seamless integration with other FNAL tools is particularly impressive. POMS very quickly became a cornerstone of all official SBND productions."

POMS organizes data processing into campaigns with stages, where each stage performs a specific step of processing.



Example of a campaign, shown in the GUI Editor, with stages connected by their dependencies

POMS Campaign Details

Details of each component are editable via the GUI editor.



Campaign/Stage Details

Batch Detail Submits grid jobs Tracks job submissions

- through Landscape
- Organizes job submissions into Campaigns with Stages
- Has a Graphical Editor for Campaigns and their
- Records how and when
- Assists in analyzing job failures with plots, charts,

- Stages.
- submissions were run
- and easy access to log files. Can also be used for Analysis, providing a common architecture for both production and analysis
- Experiment Superusers see all computing in one place

POMS Landscape

POMS is well integrated with Landscape/Grafana with many plots, reports and status pages available.



"The Muon g-2 experiment uses POMS for data processing and MC production. We found it beneficial for submitting, tracking, bookkeeping and monitoring grid jobs. In addition, with POMS we can automate our for our next round of data taking in October 2019. POMS is a great asset to the offline team of Muon g-2 experiment."





"I find the dependency workflow and the recovery feature of POMS extremely useful. And I think there is a quick response from the POMS team. "

Submitted Jobs Dashboard



Campaigns can be drilled down to stages, submissions and even specific log files.





Q	Dev Tools											
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¢	Management	CIEMAT RAL FermiGrid CERN NIKHEF FZU Liverpool					dune					
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									1–50 of 484	,766 < >		
		Time 🗸	JobsubJobid	Owner	ExitCode	ExitSignal	MATCH_GLIDEIN_Site	MachineAttrMachine0	stdout	stderr		
		May 31st 2019, 11:01:01.000	19083729.0@jobsub01.fnal.gov	dunepro	0		FermiGrid	fnpc17145.fnal.gov	[stdout]	[stderr]		
		 May 31st 2019, 10:59:13.000 	19081611.0@jobsub01.fnal.gov	dunepro	0		FermiGrid	fnpc7304.fnal.gov	[stdout]	[stderr]		
		 May 31st 2019, 10:58:09.000 	19081838.0@jobsub01.fnal.gov	dunepro	0		FermiGrid	fnpc7309.fnal.gov	[stdout]	[stderr]		
		 May 31st 2019, 10:58:00.000 	19082662.0@jobsub01.fnal.gov	dunepro	0		FermiGrid	fnpc9013.fnal.gov	[stdout]	[stderr]		
		 May 31st 2019, 10:57:40.000 	19077812.0@jobsub01.fnal.gov	dunepro	0		FermiGrid	fnpc17116.fnal.gov	[stdout]	[stderr]		
		 May 31st 2019, 10:57:15.000 	19098790.0@jobsub01.fnal.gov	dunepro	0		FermiGrid	fnpc17126.fnal.gov	[stdout]	[stderr]		
		May 31st 2019, 10:57:11.000	19088623.0@jobsub01.fnal.gov	dunepro	0		FermiGrid	fnpc9048.fnal.gov	[stdout]	[stderr]		
		 May 31st 2019, 10:56:01.000 	19078043.0@jobsub01.fnal.gov	dunepro	0		FermiGrid	fnpc9021.fnal.gov	[stdout]	[stderr]		
		May 31st 2019, 10:54:40.000	19087832.0@jobsub01.fnal.gov	dunepro	0	-	FermiGrid	fnpc8005.fnal.gov	[stdout]	[stderr]		

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