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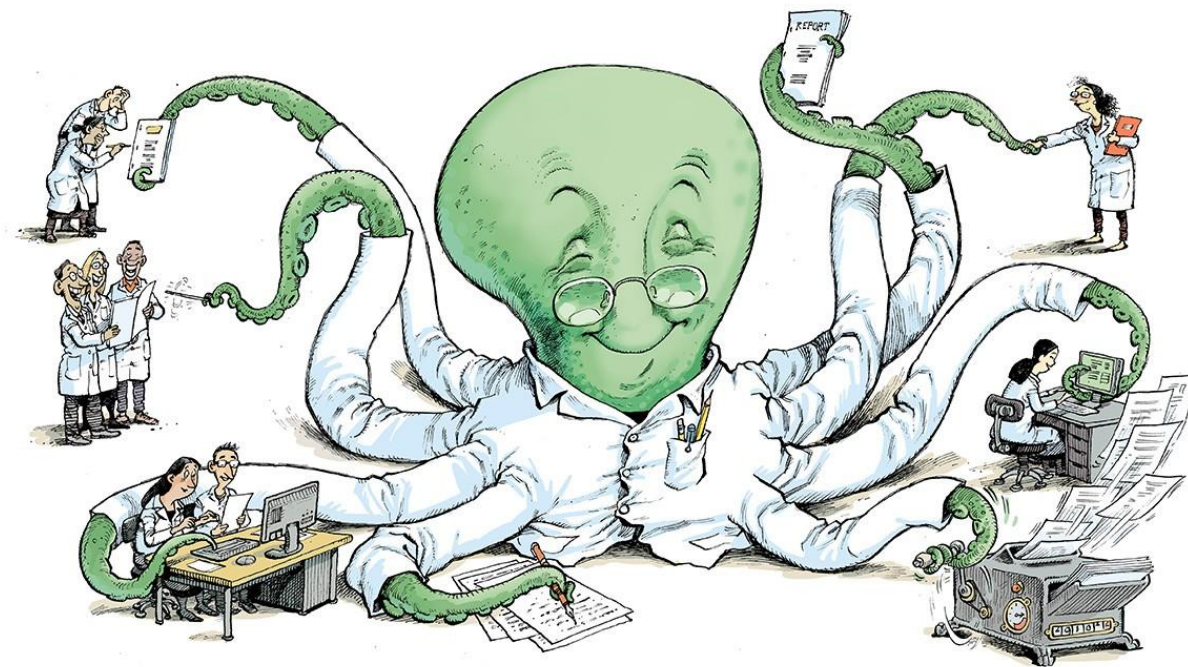
EXCELENCIA
SEVERO
OCHOA

How can Autosubmit make your work easier

The Autosubmit Team

Instructions for this session

We are here to explain you how you can **benefit** from the **work** that we do developing **Autosubmit**.



Thousands of scientists publish a paper every five days

Instructions for this session

If you don't understand something, please **don't wait** till the end, ask in the moment!



Instructions for this session

We will also do **stops** for other kind of **questions** at the end of every section. We want you to participate!

Agenda

1. Workflow managers & Autosubmit **motivation**
2. Autosubmit basic **usage**
3. Workflow **examples** → What kind of workflows you can **create**?
4. Release **news**: 3.12.0 3.13.0
5. Autosubmit **GUI** → The Autosubmit **Graphical Interface**
6. **Wrappers**
7. Advanced **tools** (API, experiment query, etc)
8. **Future plans**
9. **Suggestions**

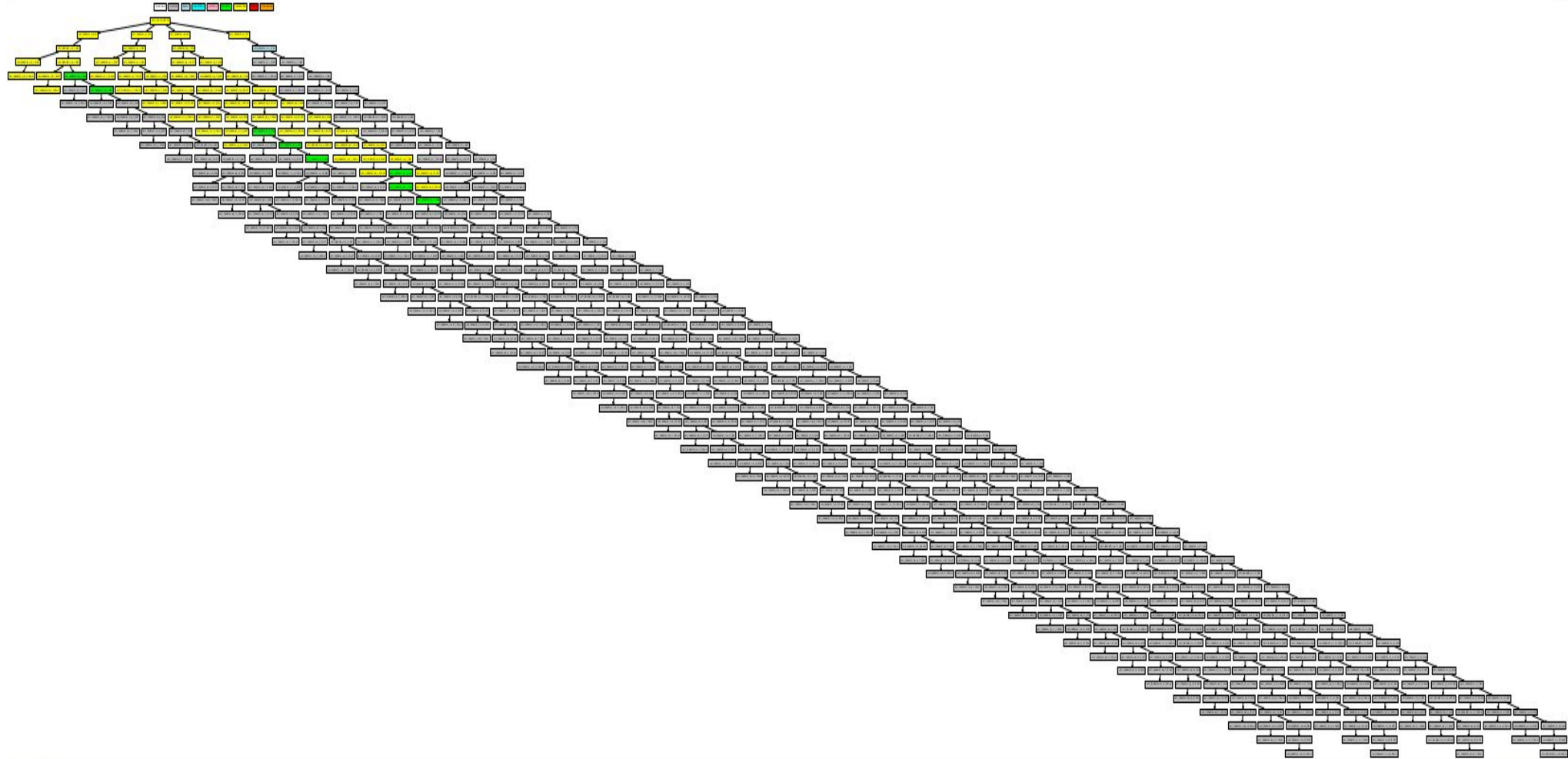
Why workflow managers? Why Autosubmit?

(Motivation)



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Workflow managers - Motivation



Workflow managers - Motivation

Workflow managers are **essential** to carry out production experiments in an **efficient** manner.

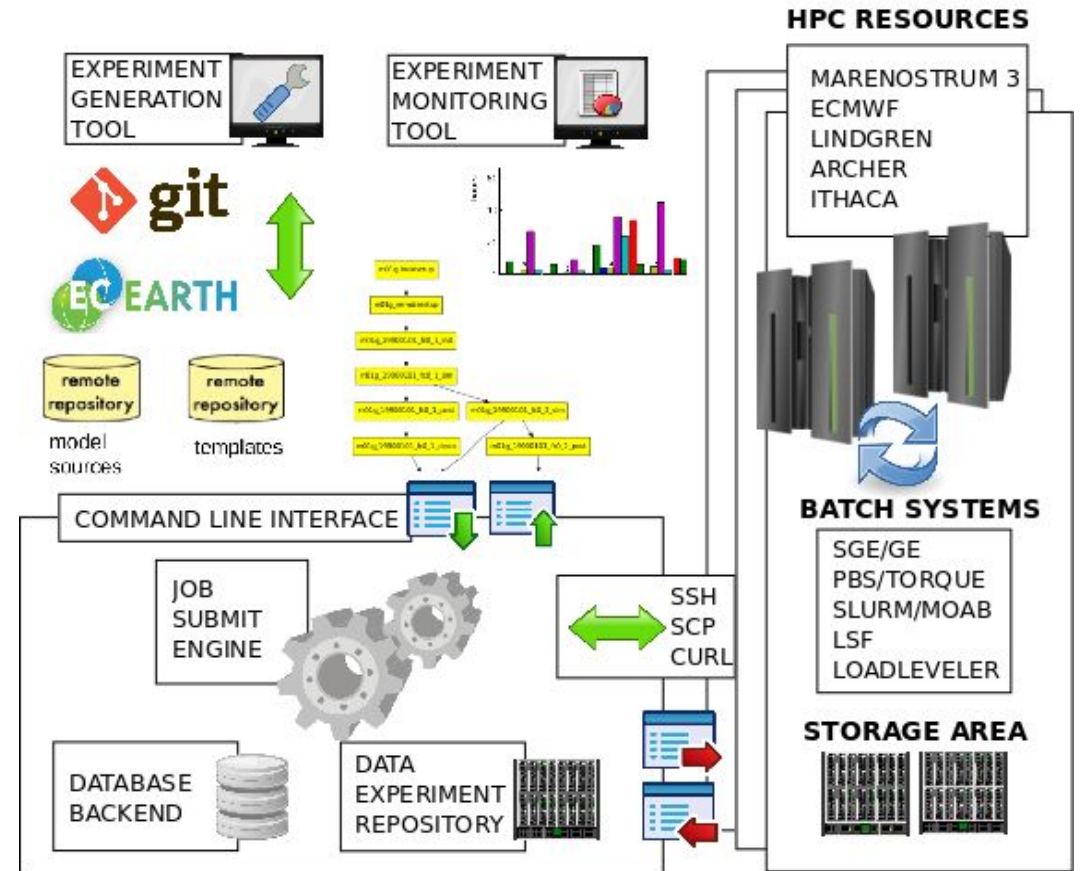
- Ensure **robustness & portability**
- **Usability** → Scientists more productive
- Handle the **complexity** and always improving to deal with the future...



Autosubmit - Definition

A **versatile** tool to **manage** Weather and Climate Experiments in **diverse** Supercomputing Environments:

<https://pypi.python.org/pypi/autosubmit>

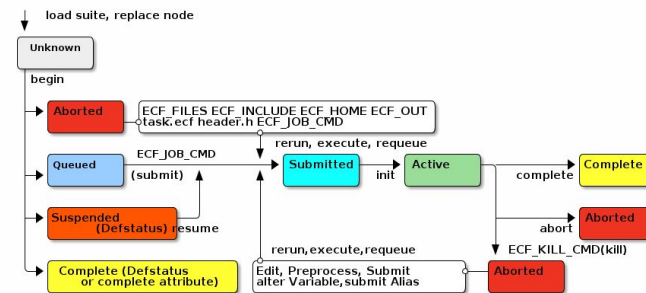
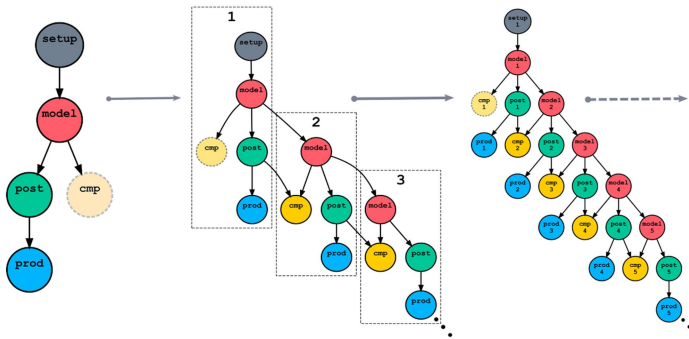


Autosubmit

- **Automatization:** Orchestrating different kind of tasks in homogeneous or heterogeneous environments. No user intervention needed.
- **Provenance and reproducibility:** Unique identifier per experiment, storing all the parameters needed to reproduce it (Autosubmit version, model version, configuration, etc.). Linked with CVS.
- **Failure tolerance:** Automatic retrials and ability to rerun chunks in case of corrupted or missing data, repeating postprocessing and transfers if needed. Recovery capabilities.
- **Versatility:** Different workflows including Auto-Models (EC-Earth, MONARCH, CALIOPE), data downloading (Auto-MARS), machine learning, performance analysis... Providing specialized features for each case (different kind of wrappers, using MPI machine files or masks to handle resources affinity).

Why Autosubmit?

- Git support.
- Easy handling startdates / members / chunks.
- Wrappers (job packages).
- Tailored to our needs. We have the knowledge and the developers.



Autosubmit team



Get involved or contact us:	
Autosubmit GitLab:	https://earth.bsc.es/gitlab/es/autosubmit
Autosubmit Mailing List:	autosubmit@bsc.es

Documentation:	
Autosubmit:	http://autosubmit.readthedocs.io
FAQ:	https://autosubmit.readthedocs.io/en/latest/faq.html
GUI:	https://autosubmit.readthedocs.io/en/latest/autosubmit-gui.html

Autosubmit basic usage



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Autosubmit - Basic Workflow - Initialization

- **Create a new experiment** -> Automatically stores fundamental info in a database.

```
module load autosubmit # in esarchive
autosubmit expid -dm -H "marenostrum4" -d "Basic"
```

- **Creates the folder structure with the most basic configuration.**

```
/esarchive/autosubmit/<expid>/conf -> Config files
/esarchive/autosubmit/<expid>/pk1 -> workflow
/esarchive/autosubmit/<expid>/plot -> Visualization
/esarchive/autosubmit/<expid>/tmp -> Logs, templates
```

Autosubmit - Basic Workflow - Configuration

conf/expdef

- Default platform (-H).
- Start dates, members and chunks.
- Experiment project source (git, local, svn, dummy).
- Project configuration file path.

conf/platforms

- Manage cluster, Fat-nodes and Support computers.
- Multiple computers are allowed (even unused).

Autosubmit - Basic Workflow - Configuration(cont.)

conf/jobs

- Scripts to execute.
- Dependencies between jobs.
- Job requirements.
- Platform and queue to use.

conf/autosubmit

- Total jobs limitation (waiting, total).
- version info, retrials, Mail notification and storage systems.
- wrappers, presubmission and migrate.

Autosubmit - Basic Workflow - Run

- Create

```
autosubmit create <expid>
```

Generates `plot/expid_timestamp_hour.pdf =>`

Generates `tmp/Log_a2x2 <= template logs`

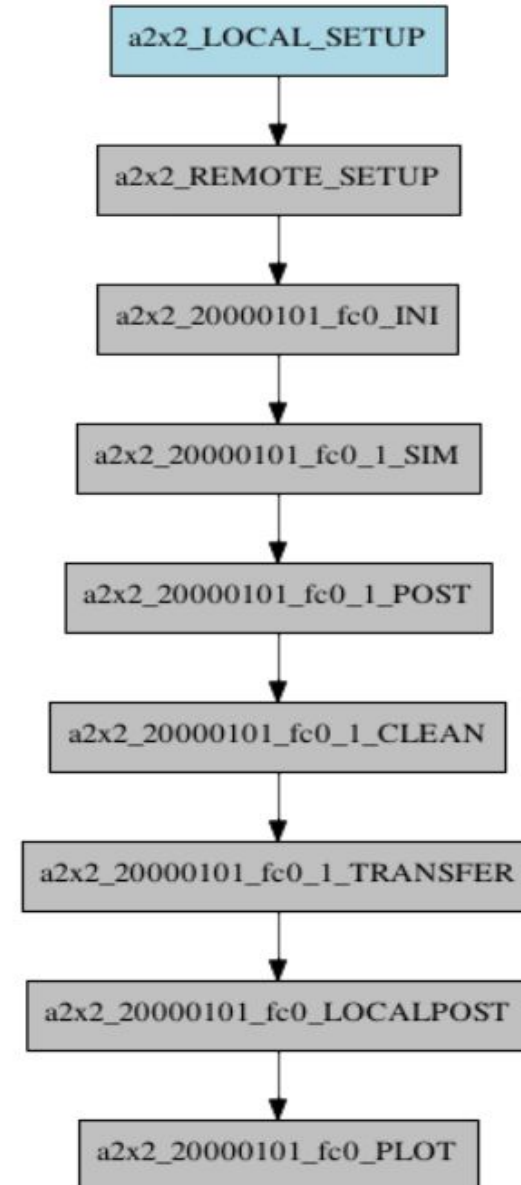
Generates `tmp/Log_a2x2 <= command logs`

(3.13.0+) `tmp/ASLOG <= command logs`

- Run Basic Workflow

Change `conf/platform`

```
autosubmit run <expid>
```



Autosubmit - Basic Config

conf/platform.conf

```
[marenostrum4]
TYPE = slurm #scheduler
HOST = mn1.bsc.es #ip or alias
PROJECT = bsc32
USER = bsc32XXX #Your username
SCRATCH_DIR = /gpfs/scratch
ADD_PROJECT_TO_HOST = false
QUEUE = debug
```

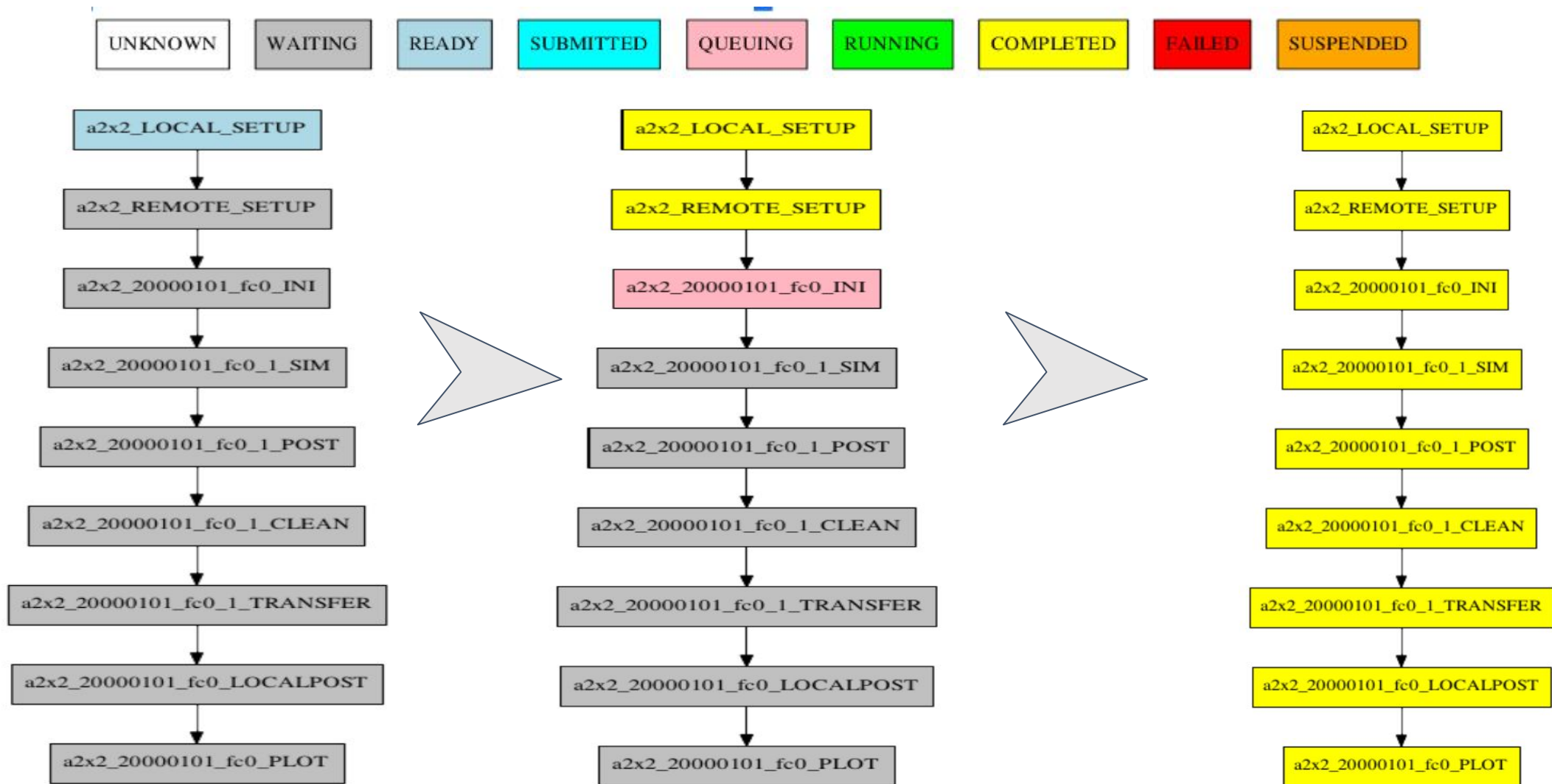
conf/expdef.conf

```
[DEFAULT]
HPCARCH = marenostrum4

[experiment]
DATELIST = 20000101
MEMBERS = fc0
CHUNKSIZEUNIT = month
CHUNKSIZE = 4
MEMBERS = fc0
NUMCHUNKS = 1
CHUNKINI =

[project]
# Select project type. STRING = git,
# svn, local, none
PROJECT_TYPE = none
PROJECT_DESTINATION = proj
```

Autosubmit - Basic Workflow - Monitor



Ok, what can I do with Autosubmit? (Workflow examples)



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Autosubmit - Examples - Auto-monarch

[LOCAL_SEND_SOURCE]

FILE = templates/local_send_source.sh
PLATFORM = marenostrium_archive
RUNNING = once

[LOCAL_SEND_STATIC]

FILE = templates/local_send_static.sh
DEPENDENCIES = LOCAL_SEND_SOURCE
PLATFORM = marenostrium_archive
RUNNING = once

[REMOTE_COMPILE]

FILE = templates/compile.sh
DEPENDENCIES = LOCAL_SEND_SOURCE
WALLCLOCK = 00:50
RUNNING = once

[PREPROC]

FILE = templates/preproc.sh
DEPENDENCIES = LOCAL_SEND_STATIC LOCAL_SEND_INITIAL REMOTE_COMPILE PREPROC-1
PROCESSORS = 8
WALLCLOCK = 00:40
RUNNING = chunk

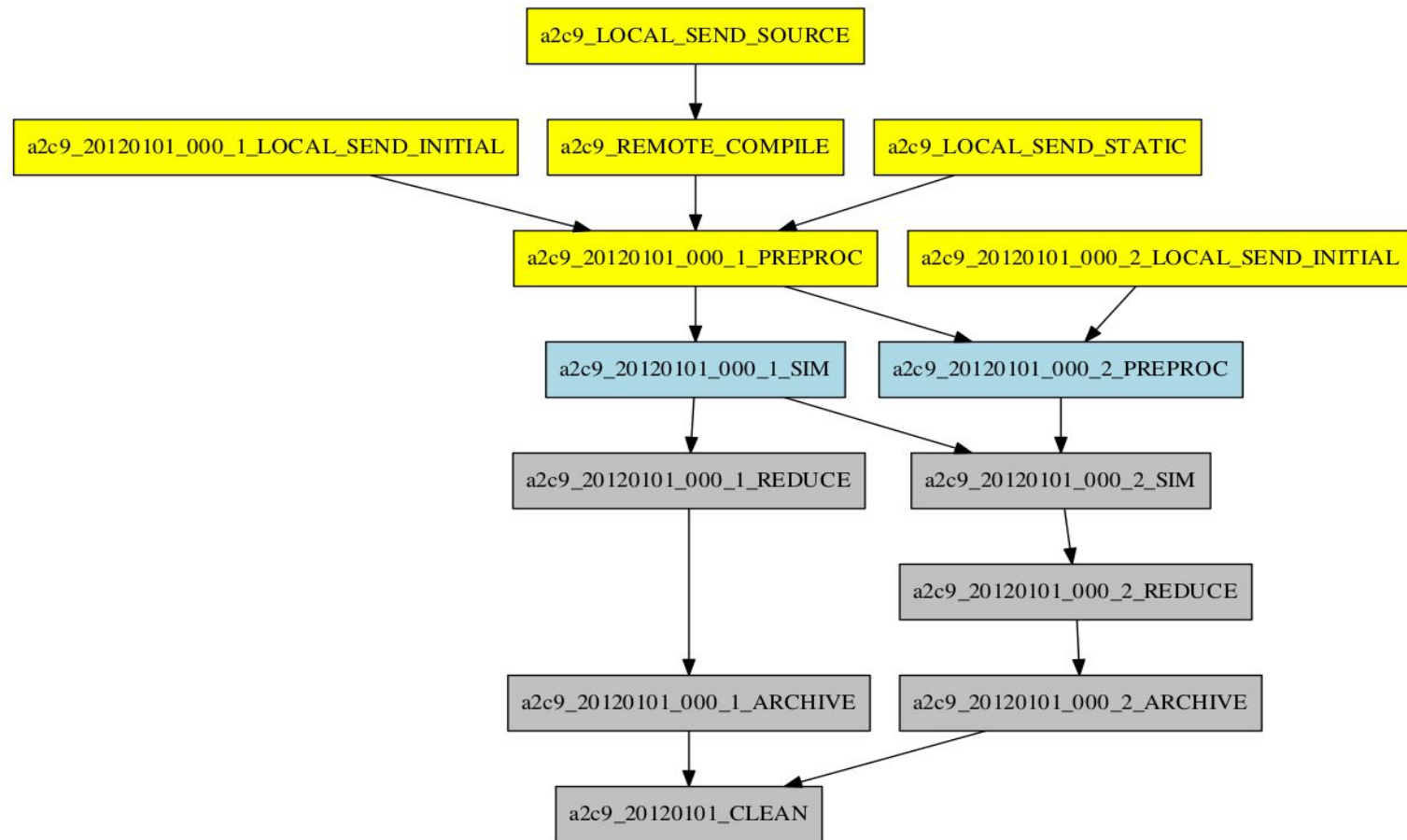
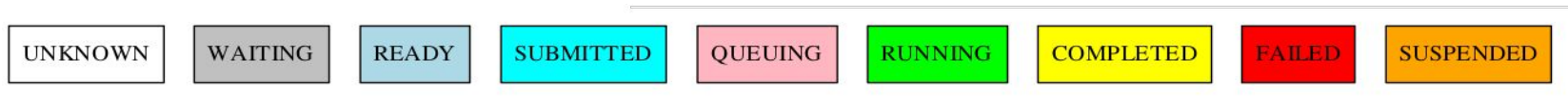
[SIM]

FILE = templates/sim.sh
DEPENDENCIES = LOCAL_SEND_STATIC REMOTE_COMPILE SIM-1
PROCESSORS = 68
WALLCLOCK = 00:40
RUNNING = chunk

[REDUCE]

FILE = templates/reduce.sh
PLATFORM = power9
DEPENDENCIES = SIM
WALLCLOCK = 00:20
RUNNING = chunk

Autosubmit - Examples - Auto-monarch



Autosubmit - Examples - Auto-ECearth

[REMOTE_SETUP]

```
FILE = sources/runtime/autosubmit/compilation.sh
DEPENDENCIES = SYNCHRONIZE
WALLCLOCK = 2:00
PROCESSORS = 4
CUSTOM_DIRECTIVES = ["#SBATCH -p interactive"]
CHECK = true
```

[SIM]

```
FILE = sources/runtime/autosubmit/ece-esm.sh
DEPENDENCIES = INI SIM-1 CLEAN-3 NCTIME-3
RUNNING = chunk
WALLCLOCK = 1:30
PROCESSORS = 768
TASKS = 48
THREADS = 1
CHECK = on_submission
```

[CMOROCE]

```
FILE = templates/common/cmoroce.tmpl.sh
DEPENDENCIES = SIM
WALLCLOCK = 1:00
RUNNING = chunk
NOTIFY_ON = RUNNING FAILED COMPLETED
TASKS = 8
CUSTOM_DIRECTIVES = ["#SBATCH --exclusive"]
CHECK = true
```

[CLEAN]

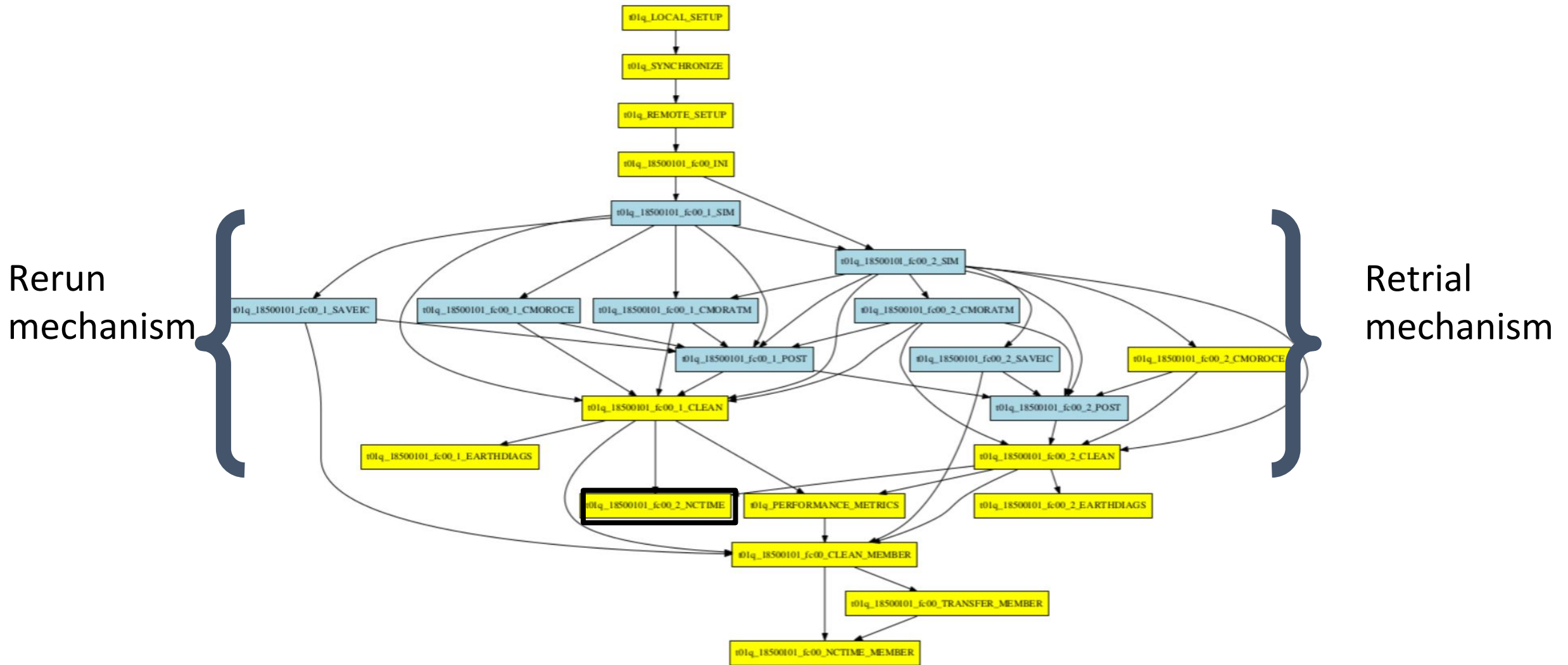
```
FILE = templates/common/clean.tmpl.sh
PLATFORM = transfer_node
DEPENDENCIES = POST SIM SIM+1 CMOROCE CMORATM CMORATM+1
RUNNING = chunk
WALLCLOCK = 00:30
CHECK = true
```

Autosubmit - Examples - Auto-ECearth

[PERFORMANCE_METRICS] (...)	[TRANSFER_MEMBER] (...)	[CMORATM] (...)	[EARTHDIAGS] (...)
[CLEAN_MEMBER] (...)	[LOCAL_SETUP] (...)	[INI] (...)	[SYNCHRONIZE] (...)
	[NCTIME_MEMBER] (...)	[POST] (...)	[EARTHDIAGS] (...)
		[NCTIME] (...)	[SAVEIC] (...)

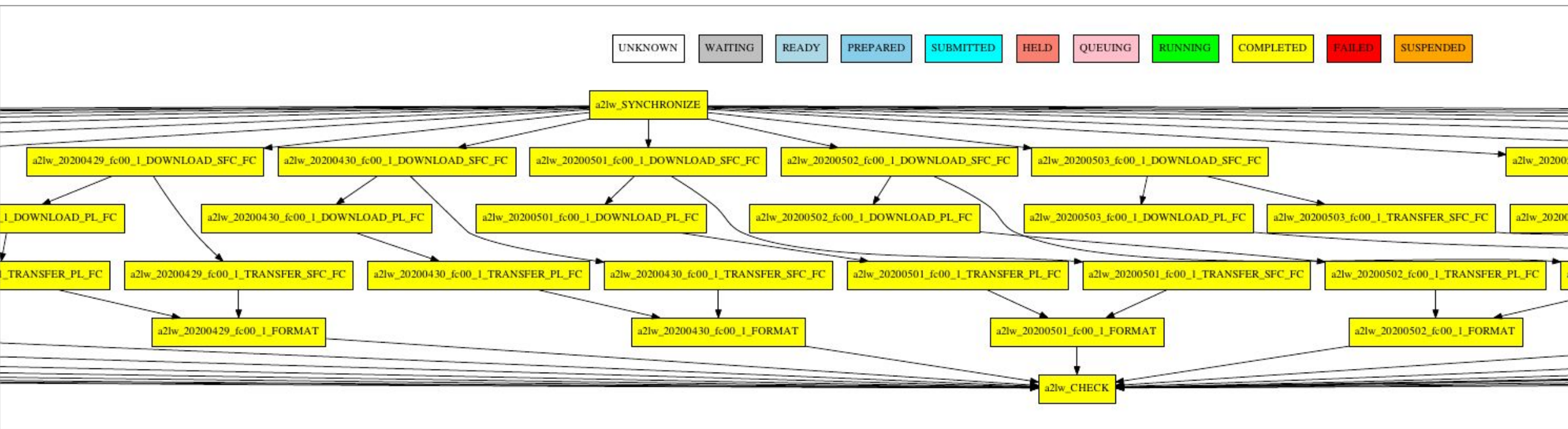
Quite large and complex, what if something fails?
Let's check the result

Autosubmit - Examples - Auto-EC-Earth



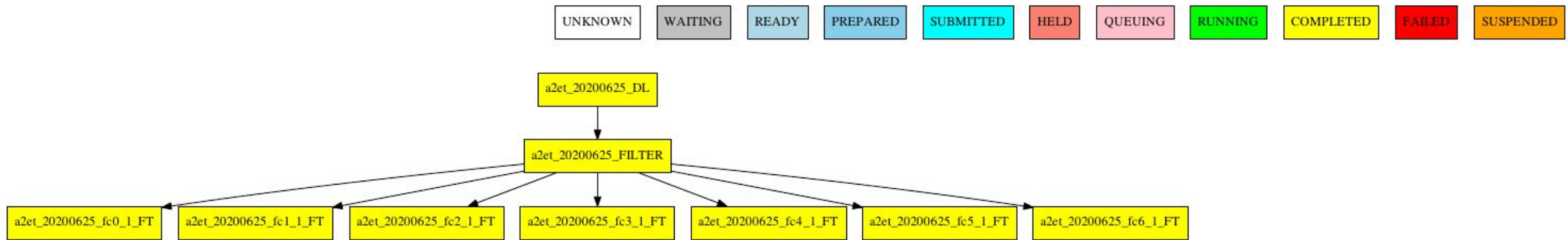
Autosubmit - Examples - Auto-Mars

ECMWF MARS data downloader



Autosubmit - Examples - S2S4E

S2S4E operational workflow (data download, formatting, post-processing and visualization)



Autosubmit - Examples - Threads

[RUN]

FILE = run.sh

DEPENDENCIES = INI RUN-1

PLATFORM = power9

RUNNING = chunk

WALLCLOCK = 02:00

PROCESSORS = 1

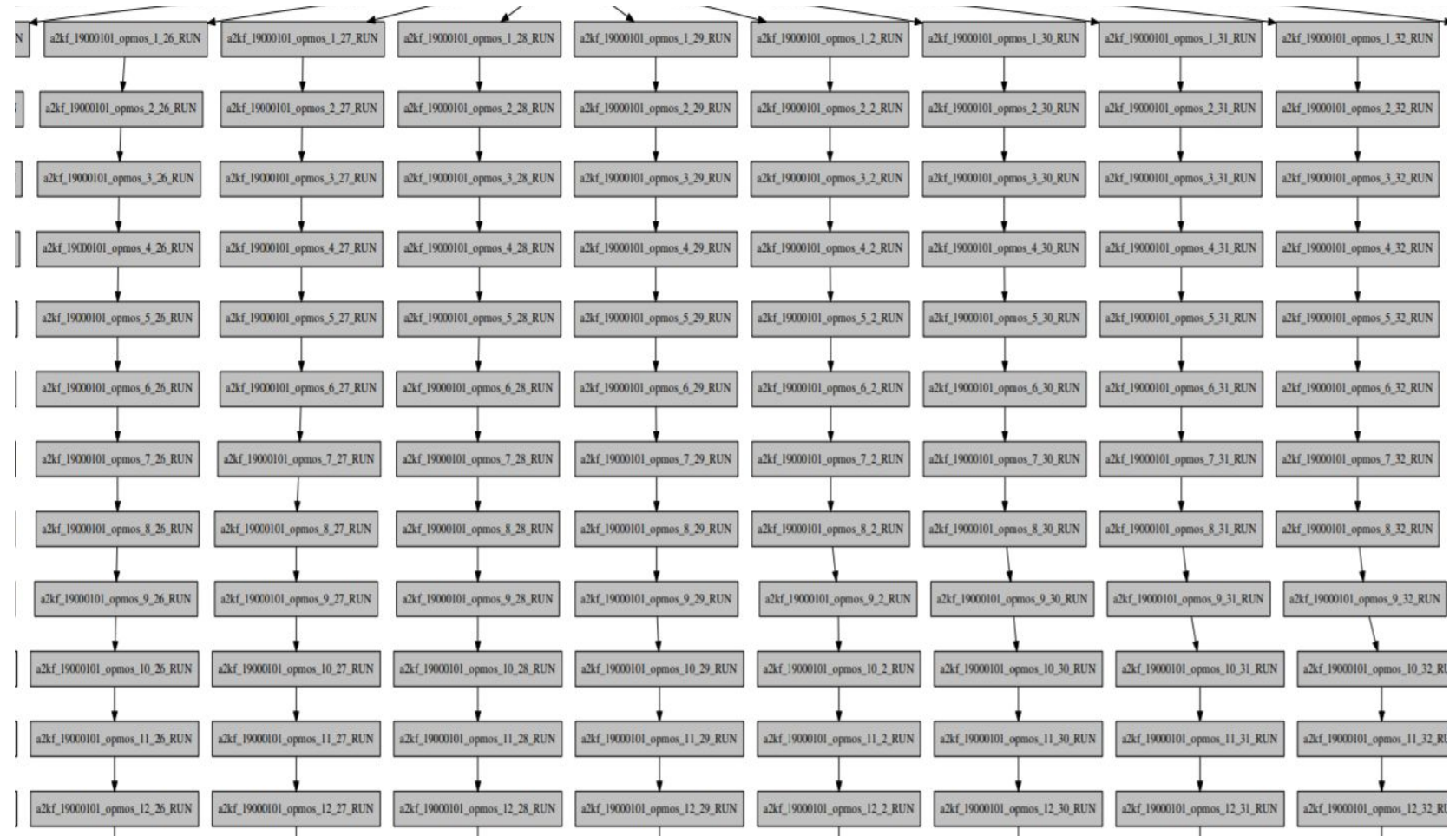
THREADS = 8

TASKS = 1

SPLITS = 40

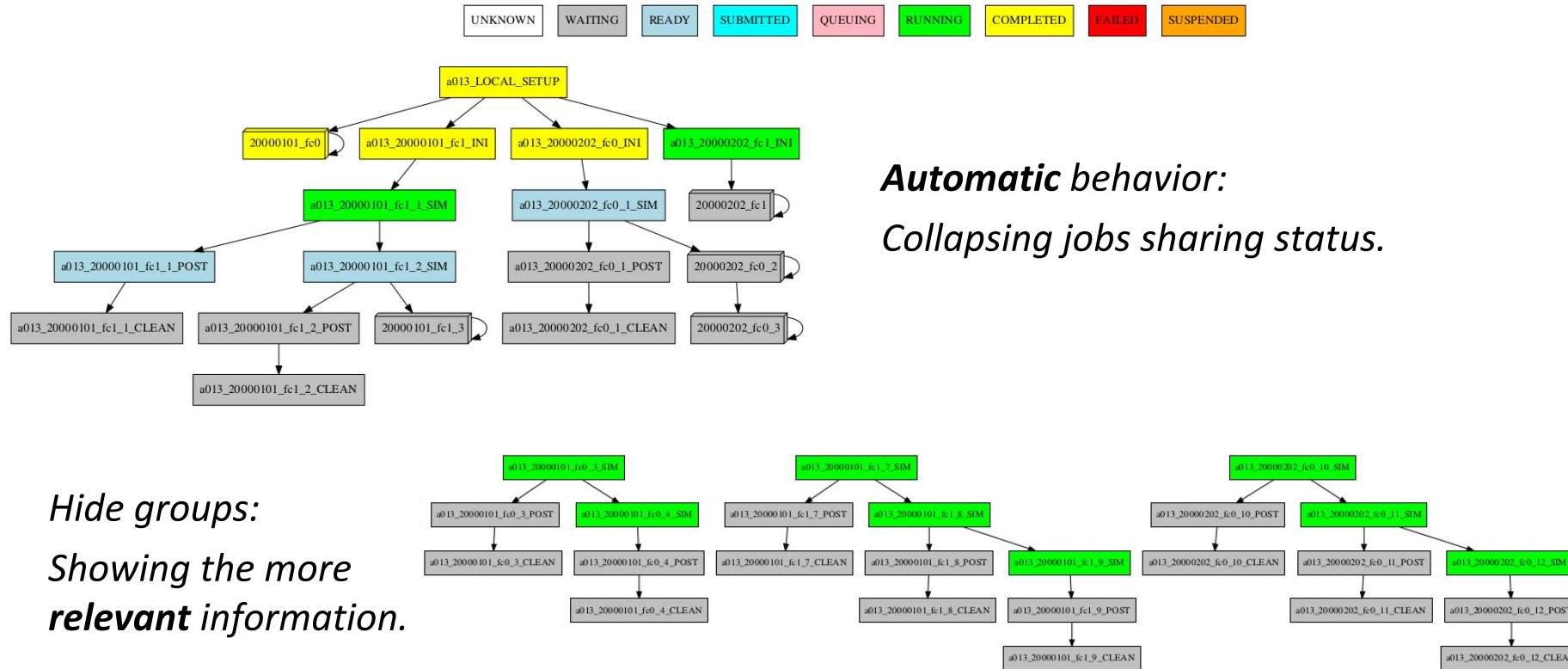
QUEUE = debug

Thread-level parallelism.
Too large to show, what
to do?



Autosubmit - Examples - Grouping

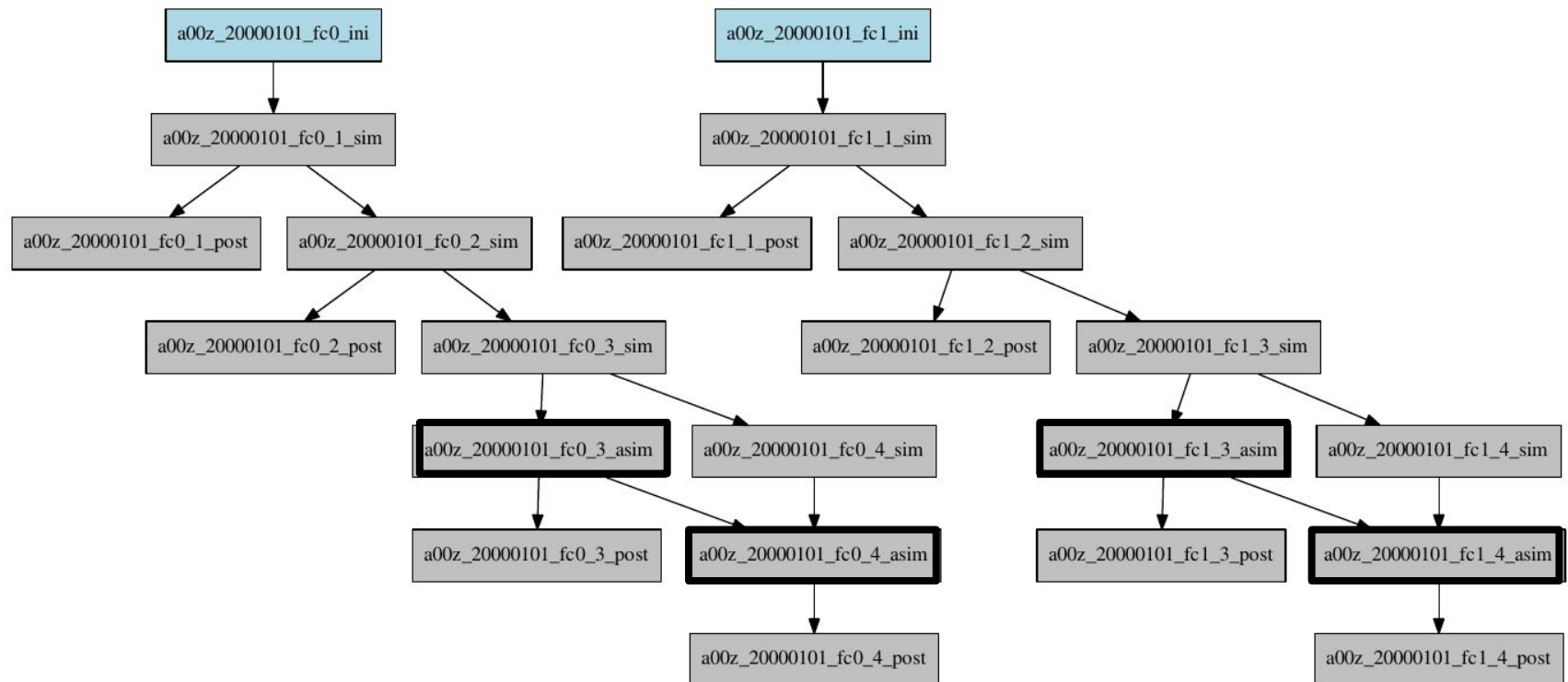
Grouping jobs by date, member, chunk, split; or automatically.



Autosubmit - Examples - Delay

- **Delay:** Option for a job to start **only after** a certain number of chunks.
- **Frequency:** Option for a job to start **every** a certain number of chunks.

```
[asim]  
FILE = asim.sh  
DEPENDENCIES = sim asim-1  
RUNNING = chunk  
DELAY = 2
```

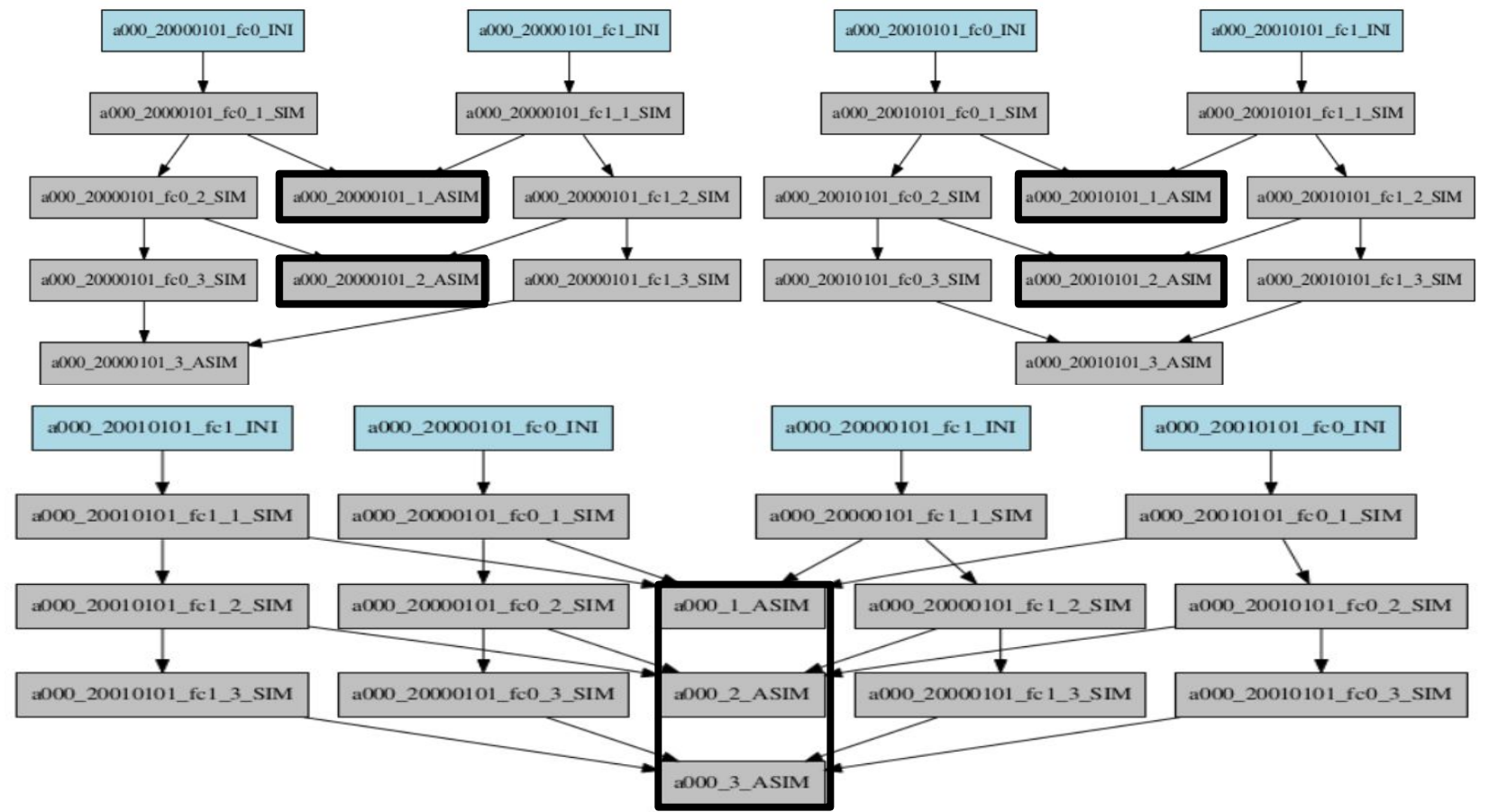


Autosubmit - Examples - Synchronize

- Option to maintain the chunk granularity.

[asim]
 SYNCHRONIZE = member

[asim]
 SYNCHRONIZE = date



Autosubmit - Common commands

autosubmit refresh

Update project experiment folder.

autosubmit inspect

Generates a preview of the job scripts combined with AS settings (templates).

autosubmit recovery

Synchronizes the status of the local platform with the remote platform

autosubmit setstatus

Allows to change the status of the workflow.

Ok, all that is cool, but what's the new thing?

(Release news)



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Autosubmit - Release - {3.12.0 - 3.13.0b}

3.12.0 - Full stable.

Vertical, horizontal wrappers.

May run experiments with less than 20 members.

Up to 50 jobs inside a wrappers.

3.13.0b - Under development.

Improvements to advanced wrappers and added Shared-memory wrappers.

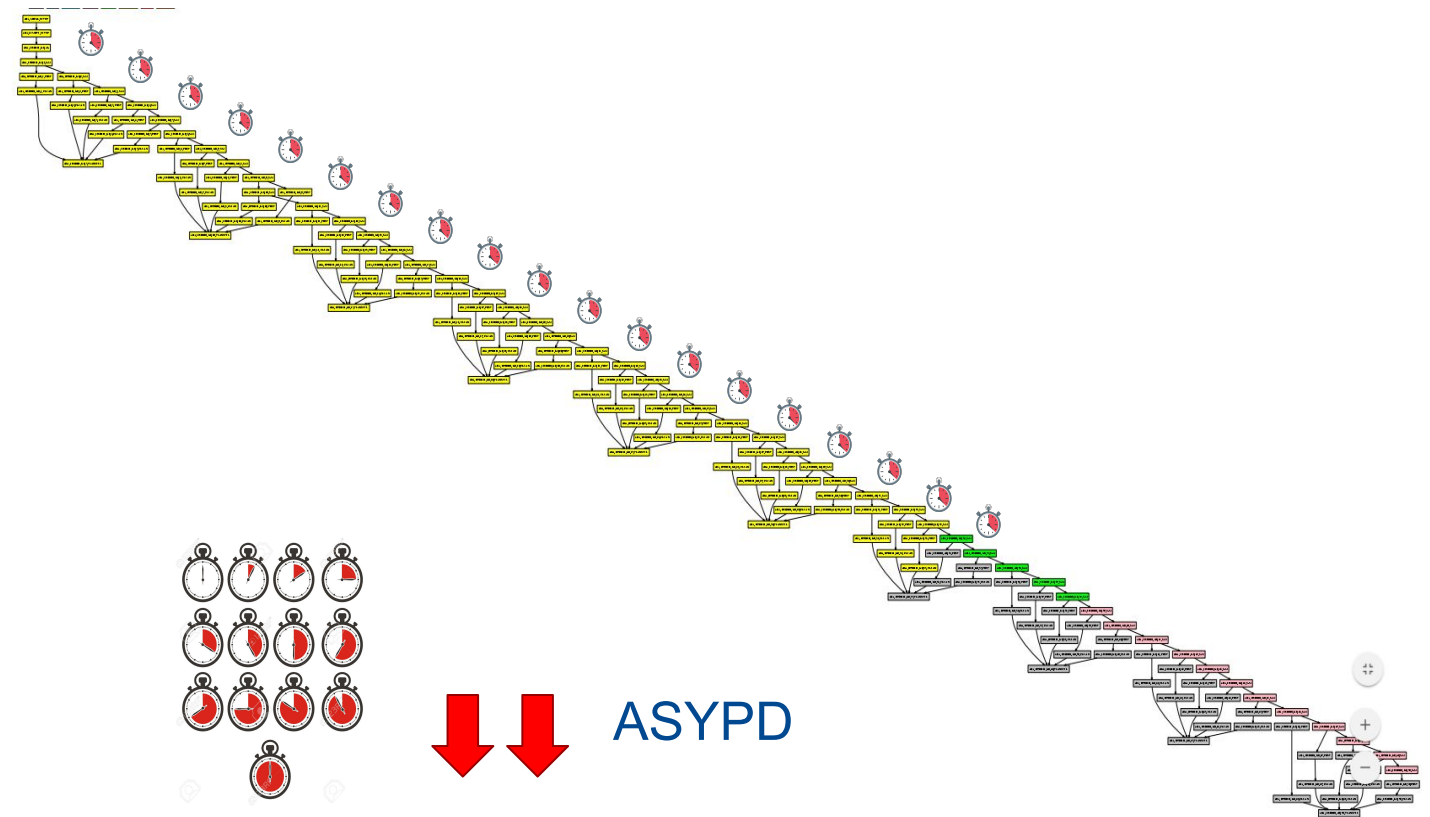
Can run experiments without size limitations*.

Better job logs recovery.

Better account of active jobs.

Autosubmit - New Features - Presubmission

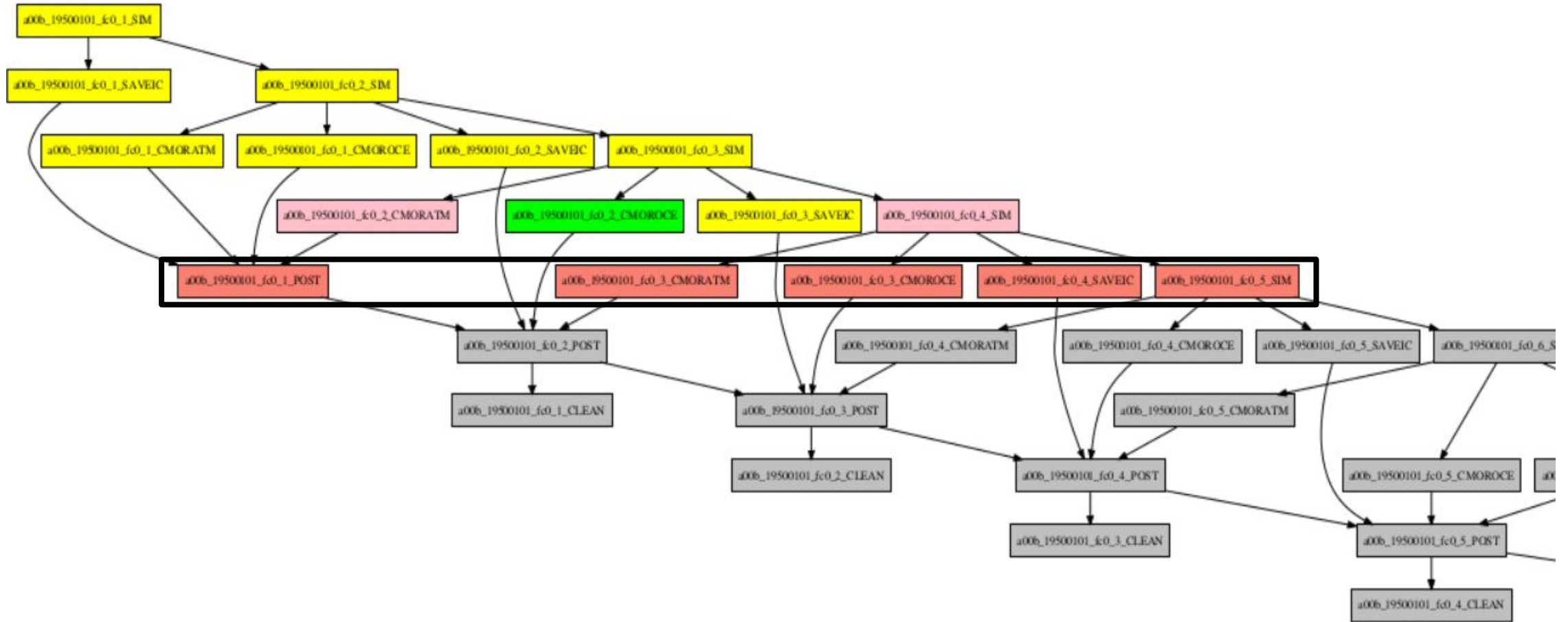
- Minimize queuing time.
- By **submitting jobs before** they are prepared to run.
- They are **hold** in the queues gaining **priority**.
- Autosubmit will **activate** them.
- **Presubmission** is set on autosubmit.conf



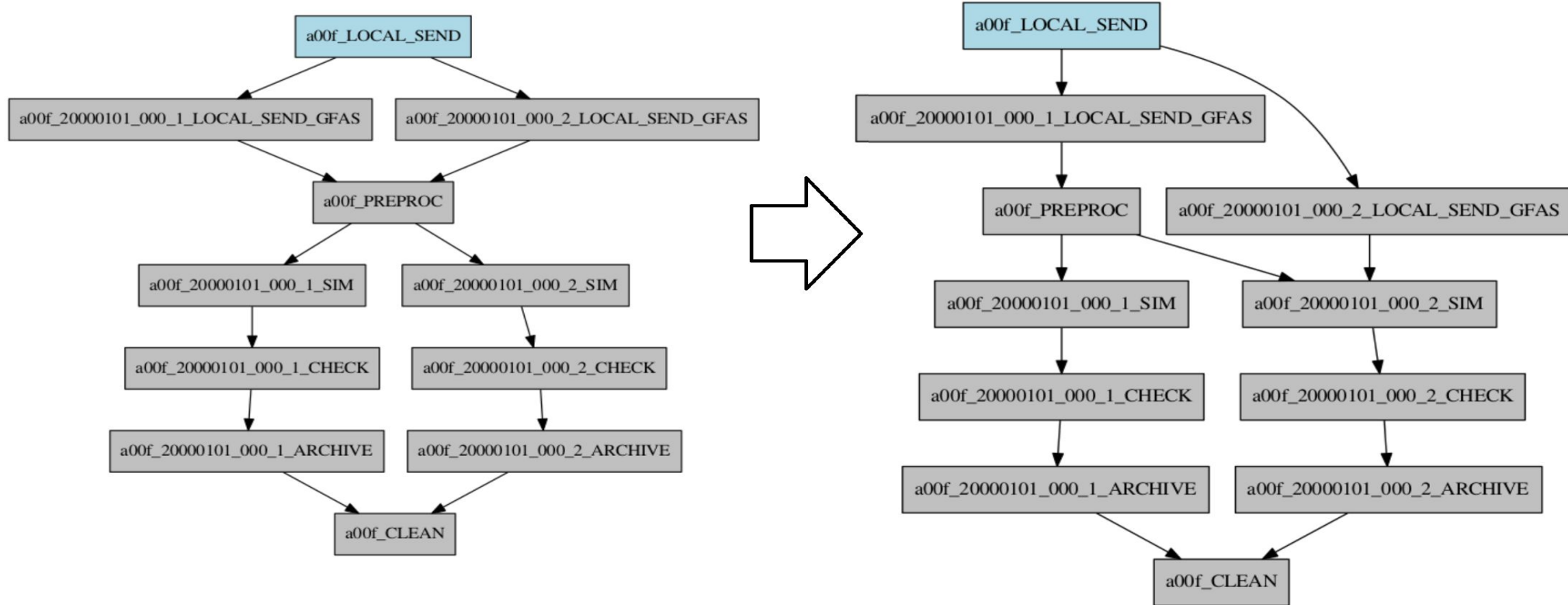
Autosubmit - New Features - Presubmission



*New Status introduced on 3.13.0b



Autosubmit - New Features - Select Chunks



[PREPROC]
FILE = templates/prepoc.sh
DEPENDENCIES = LOCAL_SEND_GFAS
(...)
SELECT_CHUNKS = LOCAL_SEND_GFAS*1

Autosubmit - New Features - Others

Performance: Numerous performance optimizations to all the AS commands, specially autosubmit run.

Persistent Job list structure: The structure of jobs is now stored on a database.(speed up)

Proj remote clone: Added into expdef.conf to remote a project from an external platform.

Platform reconnection: Multiple hosts can be added, rotative.

```
[marenostrom4]
```

```
HOST = mn1.bsc.es,mn2.bsc.es,mn3.bsc.es
```

Added Shared-memory wrappers: Added a new parameter, METHOD = SRUN, into the wrappers. Implies changes into the generated wrapper template.

Autosubmit Graphical User Interface (The GUI)



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Presentation Structure

- Autosubmit GUI Main Window
 - Search
 - Summary data
 - How Autosubmit GUI collects data
- Experiment Information
 - Experiment Main Window
 - Experiment Metadata (Header and Footer)
- Tree Representation
 - General Description
 - Wrappers Representation
 - Monitoring
 - Filtering
 - Advanced Filter
- Graph Representation
 - General Description
 - Wrappers Representation
 - Monitoring
 - Job Search
 - Grouped by Date Member
 - Grouped by Status
 - Laplacian
- Autosubmit Log
 - General Description
- Autosubmit Statistics
 - General Description
 - Filtering
- Performance Metrics
 - Description
- More Tools
 - Command generation

Autosubmit GUI Main Window: Search

Autosubmit Searcher Home [About](#)

If it uses Autosubmit, you will find it. Search by expid, description, or owner. **Search** **Running**

- brad
- wuruchi
- pechevar
- a22
- t0c0
- mcastril

Search
Running
Home
About

<https://earth.bsc.es/autosubmitapp/>

Autosubmit GUI Main Window: Search Result

Search bar: tarsouze [Search] [Running]

Buttons: Show Detailed Data, Clear

Job ID	Progress	Status	Owner	Description	Buttons	HPC
a28v	1642 / 2403	RUNNING	tarsouze	Historical experiment of EC-Earth3.2-VHR experiment for PRIMAVERA. Follows the 50 years spin-up of experiment a142.	Summary, More	marenostrom4
a0un	15 / 17	NOT RUNNING	tarsouze	First test with EC-Earth LR	Summary, More	marenostrom4
a0us	3 / 17	NOT RUNNING	tarsouze	New test for bug reporting	Summary, More	marenostrom4
a0ve	14 / 18	NOT RUNNING	tarsouze	Test with primavera version	Summary, More	marenostrom4
a0z0	3 / 5	NOT RUNNING	tarsouze	Test T1279-ORCA12	Summary, More	marenostrom4
a11e	3 / 8	NOT RUNNING	tarsouze	NEMO-ORCA12 standalone spinup, before coupling to IFS, starting in 1950	Summary, More	marenostrom4
a13r	51 / 51	NOT RUNNING	tarsouze	NEMO-ORCA12 standalone 1 year (1950) spinup using 2 days run restart (exp. a11e, run with short time step)	Summary, More	marenostrom4
a142	3007 / 3013	NOT RUNNING	tarsouze	ORCA12-T1279 spin-up : a17z restart for the ocean, perpetual year 1950	Summary, More	marenostrom4
a179	NA / NA	NOT RUNNING	tarsouze	test suite for configuration T511L91-ORCA025L75-LIM3 from cold start	Summary, More	marenostrom4
a17a	NA / NA	NOT RUNNING	tarsouze	test suite for configuration T511L91 from cold start	Summary, More	marenostrom4
t03b	23 / 23	NOT RUNNING	pechevar	tag test 3.2.3 a179 T511L91-ORCA025L75-LIM3 coupled cold start @tarsouze	Summary, More	marenostrom4
t03c	23 / 23	NOT RUNNING	pechevar	tag test 3.2.3 a179 T511L91-ORCA025L75-LIM3 coupled cold start @tarsouze	Summary, More	cca-intel

Running jobs are always first. Experiment completion information. Quick way to see the status of your experiment.

Autosubmit GUI Main Window: Summary Data

a28v 1642 / 2403 RUNNING

Owner: tarsouze

Historical experiment of EC-Earth3.2-VHR experiment for PRIMAVERA. Follows the 50 years spin-up of experiment a142.

[Refresh](#) [More](#)

All : avg. queue **0:21:10** | run **1:36:01**
SIM (600) : avg. queue **1:19:20** (412) | run **4:44:33** (412)

Running: 2 Submitted: 2

HPC: marenostrom4

All : avg. queue **0:00:40** | run **0:29:18**
SIM (3) : avg. queue **0:01:26** (3) | run **3:07:51** (3)

Suspended: 3

Failed: 2

- 1. t0ep_18500101_fc1_CLEAN_MEMBER
- 2. t0ep_18500101_fc1_1_ECE3POST

HPC: marenostrom4

Average Queue Time
Average Running Time
Independent for SIM jobs
Failed jobs

How do we collect data?

Workers running on constant intervals make sure we get **current data most of the time**.

Workers make sure that no information is left behind, also make **corrections due to concurrency** conflicts.

These workers have been proven effective; however we need more reliability and more data.

Right now our main source of information is the **file system**.

In the near future, our main source of information will be **distributed sqlite3 databases** that store the lifecycle of your experiment, while still **preserving the traditional filesystem storage**.

In the not so far future, all information must be **centralized in single document database** (because that is the nature of the information the experiments generate).

Experiment Information: Main Window

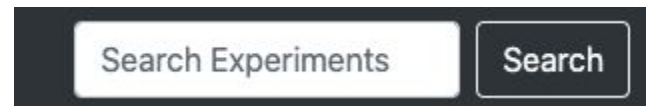
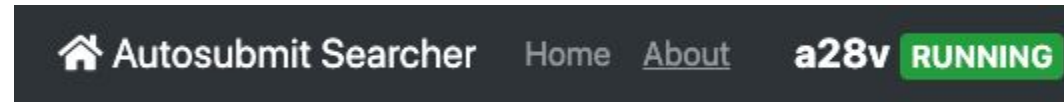
The screenshot displays the main window of the Autosubmit Searcher application. The interface includes a top navigation bar with the application name, home and about links, and a search bar. Below the navigation bar, there are tabs for 'Tree View', 'Graph', 'Log', 'Statistics', and 'Performance'. A control panel contains buttons for 'Clear Tree View', 'Refresh', and 'Start Job Monitor'. A filtering section includes a 'Filter text' input, 'Filter', and 'Clear' buttons, along with summary statistics: 'Total #Jobs: 386 | Chunk unit: month | Chunk size: 12'. The main area features a tree view of jobs with the following structure:

- └─ a2wf_32850101
 - └─ a2wf_32850101_fc0 12 / 191 COMPLETED 1 FAILED 1 RUNNING
- └─ a2wf_18500101
 - └─ a2wf_18500101_fc0 13 / 191 COMPLETED 1 FAILED 1 RUNNING
- └─ Keys
 - └─ a2wf_LOCAL_SETUP #COMPLETED ~ (0) + 0 min. SOURCE
 - └─ a2wf_SYNCHRONIZE #COMPLETED ~ (0) + 2 min.
 - └─ a2wf_REMOTE_SETUP #COMPLETED ~ (0) + 0 min.
 - └─ a2wf_PERFORMANCE_METRICS #WAITING

The right-hand side of the window is currently empty, with a placeholder message: 'Here goes the Job Id' and 'Select a Node to see more information.'

Header
Tabs
Control Panel
Filtering Panel
TreeView as default | Job
Selection
Footer

Experiment Header



**Main Navigation Bar includes running verification every 30 seconds.
You can also perform search from it.**

Experiment Footer

Historical experiment of EC-Earth3.2-VHR experiment for PRIMAVERA. Follows the 50 years spin-up of experiment a142. |

Experiment Description

Branch: 3.2.2_Primavera_production_T1279-ORCA12 | Hpc: marenstrum4 | Owner: 1946 tarsouze | Version: 3.12.0b0 | Modified: 2019-10-23 10:46:36

Tree Representation: General Description

Tree View | Graph | Log | Statistics | Performance

Clear Tree View | Refresh | Start Job Monitor

Filter text | Filter | Clear | Total #Jobs: 2403 | Chunk unit: month | Chunk size: 1

a28v_19500101

- a28v_19500101_fc0 **1640 / 2401 COMPLETED** **2 RUNNING**
 - a28v_19500101_fc0_INI **#COMPLETED** ~ (0) + 33 min.
 - a28v_19500101_fc0_1_SIM **#COMPLETED** ~ (45) + 1 min. **Wrapped 15696160397210**
 - a28v_19500101_fc0_2_SIM **#COMPLETED** ~ (398) + 241 min. **Wrapped 15699180365233**
 - a28v_19500101_fc0_3_SIM **#COMPLETED** ~ (1) + 265 min. **Wrapped 15699180365233**
 - a28v_19500101_fc0_4_SIM **#COMPLETED** ~ (1) + 258 min. **Wrapped 15699180365233**
 - a28v_19500101_fc0_5_SIM **#COMPLETED** ~ (141) + 0 min. **Wrapped 15700994707505**
 - a28v_19500101_fc0_6_SIM **#COMPLETED** ~ (1) + 0 min. **Wrapped 15700994707505**
 - a28v_19500101_fc0_7_SIM **#COMPLETED** ~ (0) + 0 min. **Wrapped 15700994707505**
 - a28v_19500101_fc0_8_SIM **#COMPLETED** ~ (1) + 0 min. **Wrapped 15700994707505**
 - a28v_19500101_fc0_9_SIM **#COMPLETED** ~ (0) + 0 min. **Wrapped 15700994707505**
 - a28v_19500101_fc0_10_SIM **#COMPLETED** ~ (1) + 0 min. **Wrapped 15700994707505**
 - a28v_19500101_fc0_11_SIM **#COMPLETED** ~ (2102) + 258 min. **Wrapped 15706081588130**
 - a28v_19500101_fc0_12_SIM **#COMPLETED** ~ (346) + 272 min. **Wrapped 15707817005369**
 - a28v_19500101_fc0_13_SIM **#COMPLETED** ~ (1) + 271 min. **Wrapped 15707817005369**
 - a28v_19500101_fc0_14_SIM **#COMPLETED** ~ (0) + 245 min. **Wrapped 15707817005369**
 - a28v_19500101_fc0_15_SIM **#COMPLETED** ~ (0) + 269 min. **Wrapped 15707817005369**
 - a28v_19500101_fc0_16_SIM **#COMPLETED** ~ (0) + 264 min. **Wrapped 15707817005369**
 - a28v_19500101_fc0_17_SIM **#COMPLETED** ~ (0) + 272 min. **Wrapped 15707817005369**
 - a28v_19500101_fc0_18_SIM **#COMPLETED** ~ (3) + 263 min. **Wrapped 15708982379109**
 - a28v_19500101_fc0_19_SIM **#COMPLETED** ~ (1) + 270 min. **Wrapped 15708982379109**
 - a28v_19500101_fc0_20_SIM **#COMPLETED** ~ (0) + 267 min. **Wrapped 15708982379109**
 - a28v_19500101_fc0_21_SIM **#COMPLETED** ~ (1) + 261 min. **Wrapped 15708982379109**
 - a28v_19500101_fc0_22_SIM **#COMPLETED** ~ (0) + 268 min. **Wrapped 15708982379109**
 - a28v_19500101_fc0_23_SIM **#COMPLETED** ~ (0) + 260 min. **Wrapped 157097846423**
 - a28v_19500101_fc0_24_SIM **#COMPLETED** ~ (0) + 268 min. **Wrapped 157097846423**
 - a28v_19500101_fc0_25_SIM **#COMPLETED** ~ (1) + 267 min. **Wrapped 157097846423**
 - a28v_19500101_fc0_26_SIM **#COMPLETED** ~ (1) + 251 min. **Wrapped 157097846423**
 - a28v_19500101_fc0_27_SIM **#COMPLETED** ~ (125) + 268 min. **Wrapped 15711258052950**
 - a28v_19500101_fc0_28_SIM **#COMPLETED** ~ (1) + 260 min. **Wrapped 15711258052950**
 - a28v_19500101_fc0_29_SIM **#COMPLETED** ~ (1) + 267 min. **Wrapped 15711258052950**
 - a28v_19500101_fc0_30_SIM **#COMPLETED** ~ (0) + 262 min. **Wrapped 15711258052950**
 - a28v_19500101_fc0_31_SIM **#COMPLETED** ~ (1) + 268 min. **Wrapped 15711258052950**

**Organized by Date-Member.
Show Status, Queue Time, Run Time.
Job Information
Expand**

a28v_19500101_fc0_2_SIM

Start: 1950 02 01 | End: 1950 03 01

Section: SIM

Member: fc0 | Chunk: 2

Platform: marenostrum4

Processors: 5040 | Wallclock: 06:00

Queue: **398 min.** | Run: **241 min.**

Status: COMPLETED | Out: 2 | In: 1

Wrapper:
a28v_ASThread_15699180365233_5040_3

Code: 15699180365233

/esarchive/autosubmit/a28v/tmp/LOG_a28v/a28v_19500 | Copy out

/esarchive/autosubmit/a28v/tmp/LOG_a28v/a28v_19500 | Copy err

Job Selection

Out: Next jobs.
In: Previous jobs.
Copy out -> Paste
Copy err -> Paste

a2t4_31700101_fc2_195_SIM

Start: 3364 01 01 End: 3365 01 01

Section: SIM

Member: fc2 Chunk: 195

Platform: marenostrom4

Processors: 768 Wallclock: 2:30

Queue: 0 min. Run: 114 min.

Status: COMPLETED Out: 5 In: 1

Wrapper:
a2t4_ASThread_15920306515450_768_14

Code: 15920306515450

/esarchive/autosubmit/a2t4/tmp/LOG_a2t4/a2t4_317001 Copy out

/esarchive/autosubmit/a2t4/tmp/LOG_a2t4/a2t4_317001 Copy err

```
(base) BleuDChan@MacBook-Pro ~ % vi /esarchive/autosubmit/a2t4/tmp/LOG_a2t4/a2t4_31700101_fc2_195_SIM.20200616070110.out
```

Tree Representation: Wrappers

Tree structure showing wrapper folders and their completion status:

- a28v_19500101
 - a28v_19500101_fc0 1640 / 2401 COMPLETED 2 RUNNING
 - Keys
 - a28v_LOCAL_SETUP #COMPLETED ~ (0) + 2 min. SOURCE
 - a28v_REMOTE_SETUP #COMPLETED ~ (0) + 0 min.
 - Wrapper: a28v_ASThread_15743453994081_5040_5 4 / 4 COMPLETED ✓
 - a28v_19500101_fc0_169_SIM #COMPLETED ~ (1) + 266 min.
 - a28v_19500101_fc0_168_SIM #COMPLETED ~ (0) + 274 min.
 - a28v_19500101_fc0_167_SIM #COMPLETED ~ (1) + 262 min.
 - a28v_19500101_fc0_170_SIM #COMPLETED ~ (1) + 250 min.
 - Wrapper: a28v_ASThread_15893580712261_5040_5 5 / 5 COMPLETED ✓
 - Wrapper: a28v_ASThread_15801384349060_5040_5 5 / 5 COMPLETED ✓
 - Wrapper: a28v_ASThread_15848373388591_5040_5 5 / 5 COMPLETED ✓
 - Wrapper: a28v_ASThread_1572487695605_5040_5 5 / 5 COMPLETED ✓
 - Wrapper: a28v_ASThread_15742492234175_5040_5 5 / 5 COMPLETED ✓
 - Wrapper: a28v_ASThread_15713846681558_5040_5 5 / 5 COMPLETED ✓
 - Wrapper: a28v_ASThread_15716271905303_5040_5 2 / 2 COMPLETED ✓
 - Wrapper: a28v_ASThread_15721361416563_5040_5 1 / 1 COMPLETED ✓
 - Wrapper: a28v_ASThread_15712292897164_5040_5 5 / 5 COMPLETED ✓
 - Wrapper: a28v_ASThread_15918053283818_5040_5 5 / 5 COMPLETED ✓
 - Wrapper: a28v_ASThread_15905072184201_5040_1 1 / 1 COMPLETED ✓
 - Wrapper: a28v_ASThread_15735203677151_5040_5 5 / 5 COMPLETED ✓
 - Wrapper: a28v_ASThread_15737509683364_5040_5 5 / 5 COMPLETED ✓
 - Wrapper: a28v_ASThread_15796265975557_5040_5 5 / 5 COMPLETED ✓
 - Wrapper: a28v_ASThread_15909148901274_5040_1 1 / 1 COMPLETED ✓
 - Wrapper: a28v_ASThread_15725854752643_5040_5 5 / 5 COMPLETED ✓
 - Wrapper: a28v_ASThread_15901601223114_5040_5 5 / 5 COMPLETED ✓
 - Wrapper: a28v_ASThread_15732001146778_5040_5 5 / 5 COMPLETED ✓
 - Wrapper: a28v_ASThread_15797073906366_5040_5 5 / 5 COMPLETED ✓
 - Wrapper: a28v_ASThread_15839621123080_5040_6 4 / 4 COMPLETED ✓
 - Wrapper: a28v_ASThread_15730267791980_5040_6 2 / 2 COMPLETED ✓

Tree structure showing wrapper folders and their completion status:

- Wrapper: a28v_ASThread_15706081588130_5040_1 1 / 1 COMPLETED ✓
 - Wrapper: a28v_ASThread_15711258052950_5040_6 6 / 6 COMPLETED ✓
 - Wrapper: a28v_ASThread_15744246843022_5040_6 3 / 3 COMPLETED ✓
 - Wrapper: a28v_ASThread_15842764195061_5040_6 3 / 3 COMPLETED ✓
 - Wrapper: a28v_ASThread_15922177949366_5040_5 2 / 5 COMPLETED 1 RUNNING
 - a28v_19500101_fc0_410_SIM #COMPLETED ~ (0) + 255 min.
 - a28v_19500101_fc0_411_SIM #COMPLETED ~ (0) + 270 min.
 - a28v_19500101_fc0_414_SIM #SUBMITTED ~ (0) min.
 - a28v_19500101_fc0_412_SIM #RUNNING ~ (2) + 48 min.
 - a28v_19500101_fc0_413_SIM #SUBMITTED ~ (0) min.
- Wrapper: a28v_ASThread_1585158705359_5040_5 5 / 5 COMPLETED ✓
- Wrapper: a28v_ASThread_15738309975696_5040_5 5 / 5 COMPLETED ✓
- Wrapper: a28v_ASThread_15719229404689_5040_5 5 / 5 COMPLETED ✓
- Wrapper: a28v_ASThread_15917220152070_5040_5 5 / 5 COMPLETED ✓
- Wrapper: a28v_ASThread_15895821894095_5040_6 6 / 6 COMPLETED ✓
- Wrapper: a28v_ASThread_15696160397210_5040_3 1 / 1 COMPLETED ✓
- Wrapper: a28v_ASThread_15843687143490_5040_6 3 / 3 COMPLETED ✓
- Wrapper: a28v_ASThread_15732805325057_5040_5 5 / 5 COMPLETED ✓
- Wrapper: a28v_ASThread_15729032041847_5040_5 5 / 5 COMPLETED ✓
- Wrapper: a28v_ASThread_15840602516055_5040_5 2 / 2 COMPLETED ✓
- Wrapper: a28v_ASThread_15846191029023_5040_5 5 / 5 COMPLETED ✓
- Wrapper: a28v_ASThread_15898750238052_5040_2 1 / 1 COMPLETED ✓
- Wrapper: a28v_ASThread_15734395342915_5040_5 5 / 5 COMPLETED ✓
- Wrapper: a28v_ASThread_15845195302425_5040_6 6 / 6 COMPLETED ✓
- Wrapper: a28v_ASThread_1576758363101_5040_6 6 / 6 COMPLETED ✓
- Wrapper: a28v_ASThread_15915384598982_5040_5 5 / 5 COMPLETED ✓
- Wrapper: a28v_ASThread_15906704829765_5040_5 5 / 5 COMPLETED ✓

One folder per wrapper.
Repeated jobs but same information.

Normalized times.

Tree Representation: Monitoring

Refresh Start Job Monitor

Total #Jobs: 2403 | Chunk unit: month | Chunk size: 1

a28v_19500101_fc0_414_SIM

Start: 1984 06 01 End: 1984 07 01

Section: SIM

Refresh: Once.

Start Job Monitor: Intervals.

2 * SAFETYSLEEPTIME

Stop Job Monitor

Total #Jobs: 2403 | Chunk unit: month | Chunk size: 1

Here goes the Job Id

Select a Node to see more information.

Monitoring jobs...

[15/6] 22:23:57: a28v_19500101_fc0_410_CLEAN to COMPLETED
[15/6] 22:23:57: a28v_19500101_fc0_410_TRANSFER to RUNNING

Tree Representation: Filtering

Tree View Graph Log Statistics Performance

#RUNNING Filter Clear Result

- ▲ a28v_19500101
 - ▲ a28v_19500101_fc0 1641 / 2401 COMPLETED 2 RUNNING
 - ▲ Wrapper: a28v_ASThread_15922177949366_5040_5 2 / 5 COMPLETED 1 RUNNING
 - a28v_19500101_fc0_412_SIM #RUNNING ~ (2) + 56 min. Wrapped 15922177949366

Filter by string in job name.

Tree Representation: Advanced Filtering

Filter using wildcard

fc0 *_SIM Filter Clear Result

- 2407 a28v_19500101
 - 2401 a28v_19500101_fc0 1641 / 2401 COMPLETED 2 RUNNING
 - Wrapper: a28v_ASThread_15743453994081_5040_5 4 / 4 COMPLETED
 - a28v_19500101_fc0_169_SIM #COMPLETED ~ (1) + 266 min.
 - a28v_19500101_fc0_168_SIM #COMPLETED ~ (0) + 274 min.
 - a28v_19500101_fc0_167_SIM #COMPLETED ~ (1) + 262 min.
 - a28v_19500101_fc0_170_SIM #COMPLETED ~ (1) + 250 min.
 - 5 Wrapper: a28v_ASThread_15893580712261_5040_5 5 / 5 COMPLETED
 - a28v_19500101_fc0_309_SIM #COMPLETED ~ (0) + 259 min.
 - a28v_19500101_fc0_307_SIM #COMPLETED ~ (0) + 271 min.
 - a28v_19500101_fc0_310_SIM #COMPLETED ~ (0) + 268 min.
 - a28v_19500101_fc0_308_SIM #COMPLETED ~ (1) + 268 min.
 - a28v_19500101_fc0_311_SIM #COMPLETED ~ (1) + 259 min.
 - 5 Wrapper: a28v_ASThread_15801384349060_5040_5 5 / 5 COMPLETED
 - a28v_19500101_fc0_216_SIM #COMPLETED ~ (1) + 270 min.
 - a28v_19500101_fc0_214_SIM #COMPLETED ~ (0) + 272 min.
 - a28v_19500101_fc0_213_SIM #COMPLETED ~ (165) + 263 min.
 - a28v_19500101_fc0_217_SIM #COMPLETED ~ (0) + 1233 min.
 - a28v_19500101_fc0_215_SIM #COMPLETED ~ (0) + 262 min.
 - 5 Wrapper: a28v_ASThread_15848373388591_5040_5 5 / 5 COMPLETED
 - a28v_19500101_fc0_266_SIM #COMPLETED ~ (1) + 251 min.
 - a28v_19500101_fc0_268_SIM #COMPLETED ~ (0) + 258 min.
 - a28v_19500101_fc0_269_SIM #COMPLETED ~ (1) + 269 min.
 - a28v_19500101_fc0_265_SIM #COMPLETED ~ (0) + 273 min.
 - a28v_19500101_fc0_267_SIM #COMPLETED ~ (0) + 268 min.
 - 5 Wrapper: a28v_ASThread_1572487695605_5040_5 5 / 5 COMPLETED
 - a28v_19500101_fc0_73_SIM #COMPLETED ~ (0) + 275 min.
 - a28v_19500101_fc0_76_SIM #COMPLETED ~ (0) + 286 min.
 - a28v_19500101_fc0_74_SIM #COMPLETED ~ (1) + 267 min.
 - a28v_19500101_fc0_72_SIM #COMPLETED ~ (237) + 271 min.
 - a28v_19500101_fc0_75_SIM #COMPLETED ~ (0) + 290 min.
 - 5 Wrapper: a28v_ASThread_15742492234175_5040_5 5 / 5 COMPLETED
 - a28v_19500101_fc0_166_SIM #COMPLETED ~ (0) + 310 min.
 - a28v_19500101_fc0_163_SIM #COMPLETED ~ (1) + 270 min.

Tree View Graph Log Statistics Performance

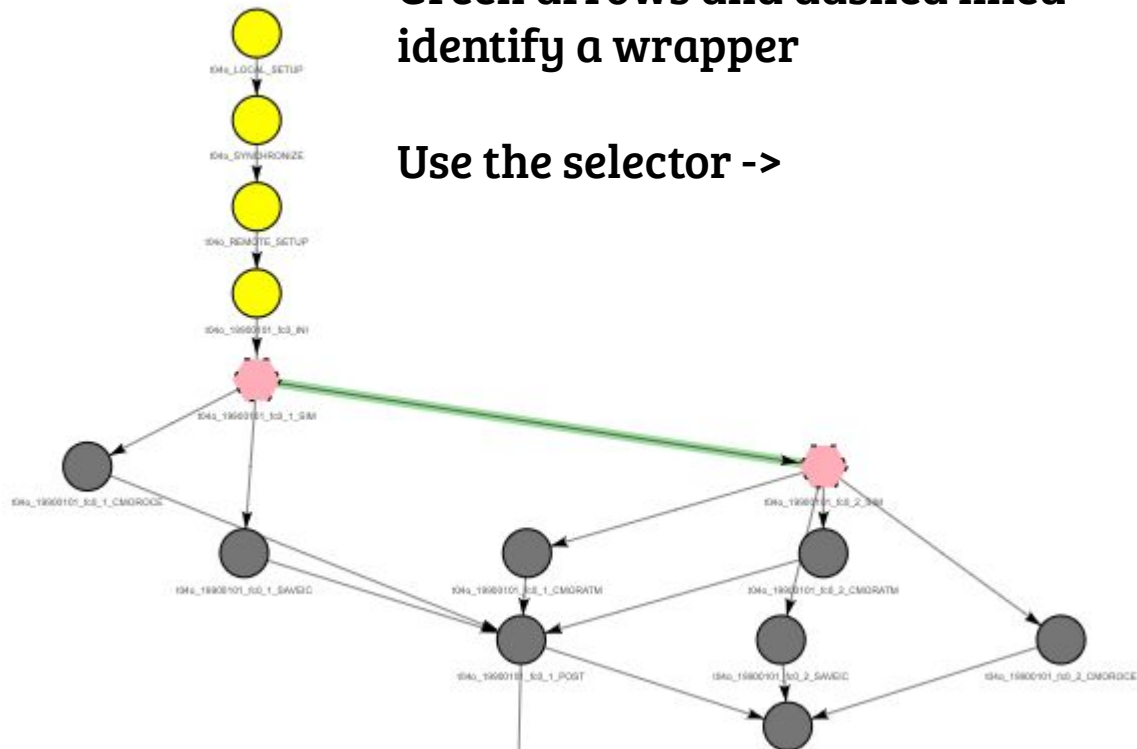
_30*_SIM Filter Clear Result

- 2407 a28v_19500101
 - 2401 a28v_19500101_fc0 1641 / 2401 COMPLETED 2 RUNNING
 - a28v_19500101_fc0_30_SIM #COMPLETED ~ (0) + 262 min. **Wrapped 15711258052950**
 - a28v_19500101_fc0_300_SIM #COMPLETED ~ (0) + 291 min. **Wrapped 15854056599921**
 - a28v_19500101_fc0_301_SIM #COMPLETED ~ (0) + 270 min. **Wrapped 1585489676549**
 - a28v_19500101_fc0_302_SIM #COMPLETED ~ (0) + 244 min. **Wrapped 1585489676549**
 - a28v_19500101_fc0_303_SIM #COMPLETED ~ (1) + 267 min. **Wrapped 1585489676549**
 - a28v_19500101_fc0_304_SIM #COMPLETED ~ (1) + 783 min. **Wrapped 1585489676549**
 - a28v_19500101_fc0_305_SIM #COMPLETED ~ (0) + 0 min. **Wrapped 1585489676549**
 - a28v_19500101_fc0_306_SIM #COMPLETED ~ (0) + 0 min. **Wrapped 1585489676549**
 - a28v_19500101_fc0_307_SIM #COMPLETED ~ (0) + 271 min. **Wrapped 15893580712261**
 - a28v_19500101_fc0_308_SIM #COMPLETED ~ (1) + 268 min. **Wrapped 15893580712261**
 - a28v_19500101_fc0_309_SIM #COMPLETED ~ (0) + 259 min. **Wrapped 15893580712261**
 - 5 Wrapper: a28v_ASThread_15893580712261_5040_5 5 / 5 COMPLETED
 - a28v_19500101_fc0_309_SIM #COMPLETED ~ (0) + 259 min.
 - a28v_19500101_fc0_307_SIM #COMPLETED ~ (0) + 271 min.
 - a28v_19500101_fc0_308_SIM #COMPLETED ~ (1) + 268 min.
 - 5 Wrapper: a28v_ASThread_1585489676549_5040_6 6 / 6 COMPLETED
 - a28v_19500101_fc0_301_SIM #COMPLETED ~ (0) + 270 min.
 - a28v_19500101_fc0_304_SIM #COMPLETED ~ (1) + 783 min.
 - a28v_19500101_fc0_305_SIM #COMPLETED ~ (0) + 0 min.
 - a28v_19500101_fc0_302_SIM #COMPLETED ~ (0) + 244 min.
 - a28v_19500101_fc0_306_SIM #COMPLETED ~ (0) + 0 min.
 - a28v_19500101_fc0_303_SIM #COMPLETED ~ (1) + 267 min.
 - 1 Wrapper: a28v_ASThread_15854056599921_5040_2 1 / 1 COMPLETED
 - a28v_19500101_fc0_300_SIM #COMPLETED ~ (0) + 291 min.
 - 5 Wrapper: a28v_ASThread_15711258052950_5040_6 6 / 6 COMPLETED
 - a28v_19500101_fc0_30_SIM #COMPLETED ~ (0) + 262 min.

Graph Representation: Wrappers

Green arrows and dashed lined identify a wrapper

Use the selector ->



Max out: 2 | Max in: 2 | Total #Jobs: 2403 | Chunk unit: month | Chunk size 1

Selection	Wrappers
<input type="checkbox"/>	ASThread_15905814966145_5040_6
<input type="checkbox"/>	ASThread_15906794829765_5040_5
<input type="checkbox"/>	ASThread_15907616006181_5040_5
<input type="checkbox"/>	ASThread_15909148901274_5040_1
<input type="checkbox"/>	ASThread_15910677155773_5040_5
<input type="checkbox"/>	ASThread_1591245412437_5040_4
<input type="checkbox"/>	ASThread_15913900693732_5040_5
<input type="checkbox"/>	ASThread_15915384598982_5040_5
<input type="checkbox"/>	ASThread_15916277483121_5040_5
<input type="checkbox"/>	ASThread_15917220152070_5040_5
<input type="checkbox"/>	ASThread_15918053283818_5040_5
<input type="checkbox"/>	ASThread_1591888144464_5040_5
<input type="checkbox"/>	ASThread_15919697927933_5040_5
<input type="checkbox"/>	ASThread_1592052144987_5040_5
<input type="checkbox"/>	ASThread_15921350568663_5040_5
<input type="checkbox"/>	ASThread_15922177949366_5040_5

Graph Representation: Monitoring

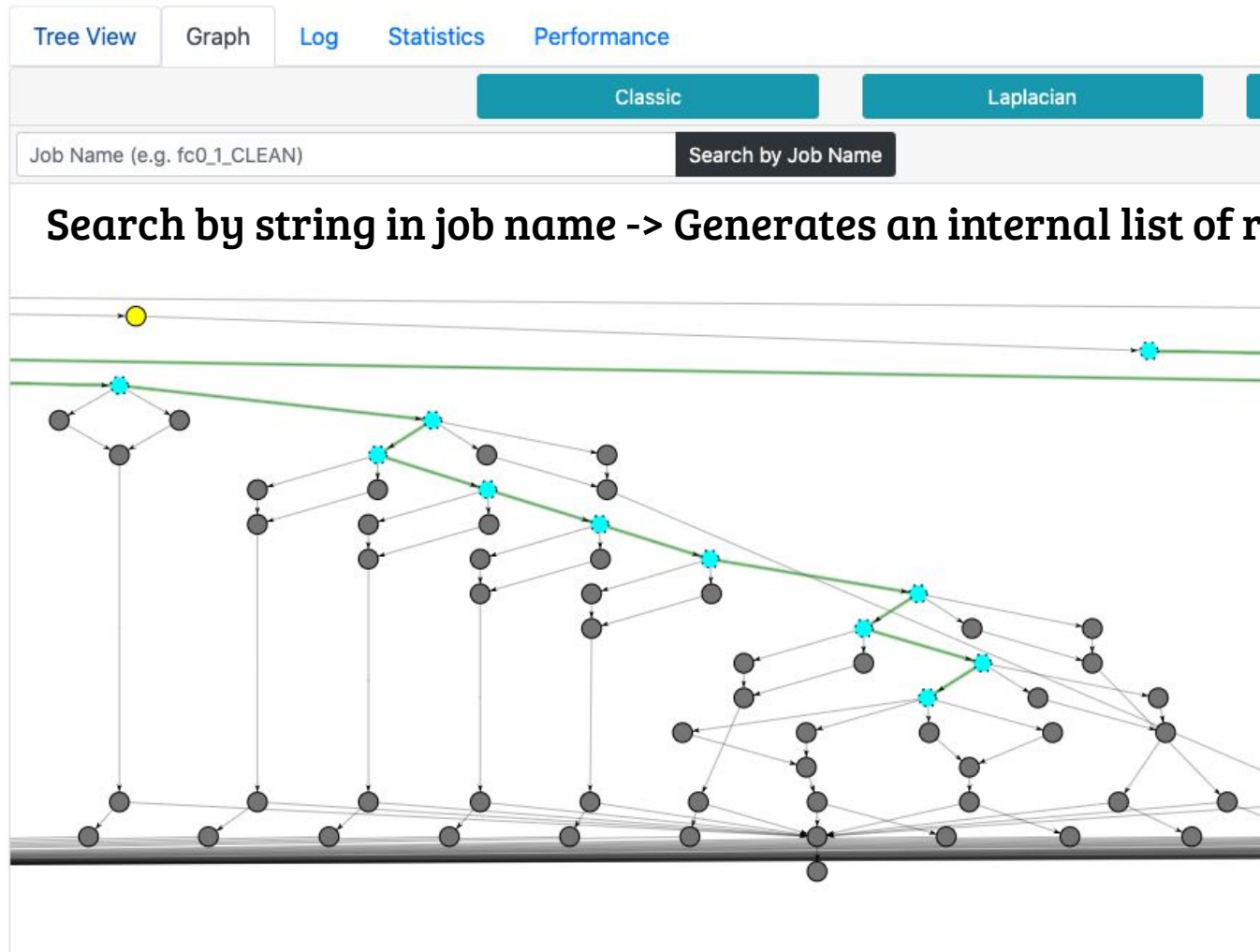
Refresh		Start Job Monitor	
Max out: 2 Max in: 2 Total #Jobs: 2403 Chunk unit: month Chunk size 1			
Selection	Wrappers		
a28v_19500101_fc0_414_SIM			

Refresh: Once.

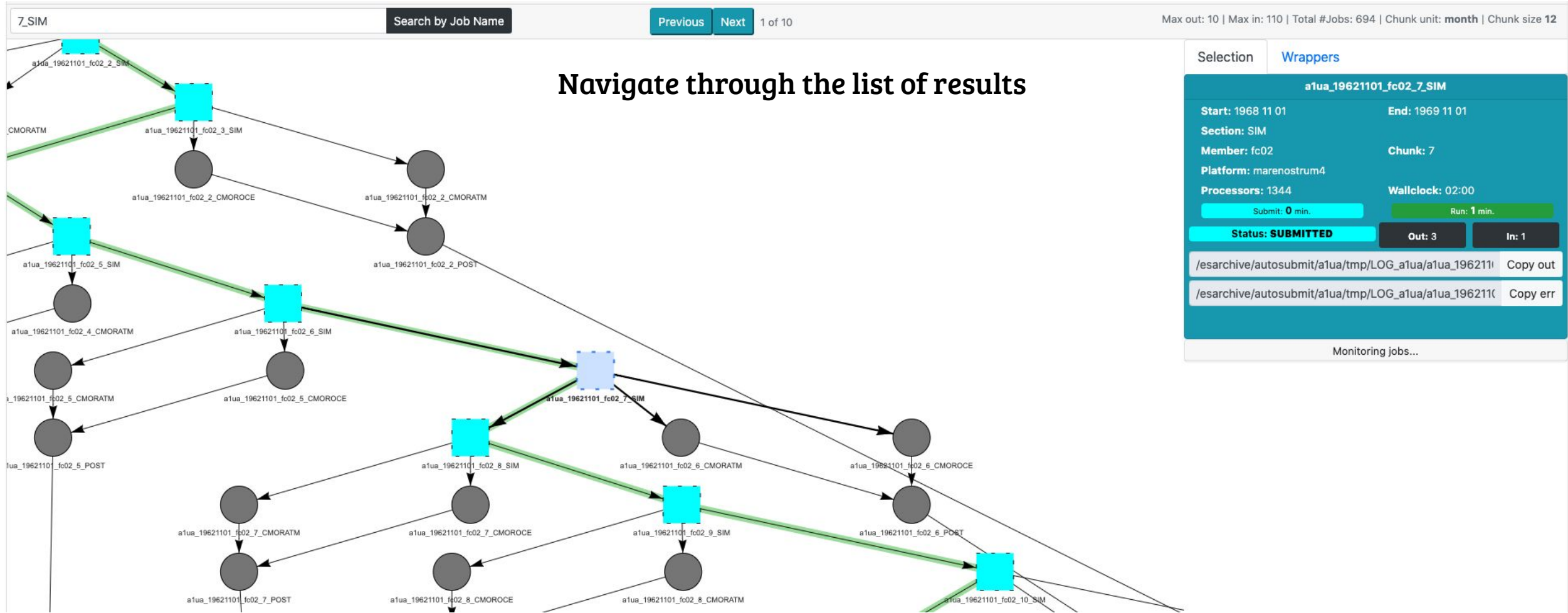
Start Job Monitor: Intervals

2 * SAFETYSLEEPTIME

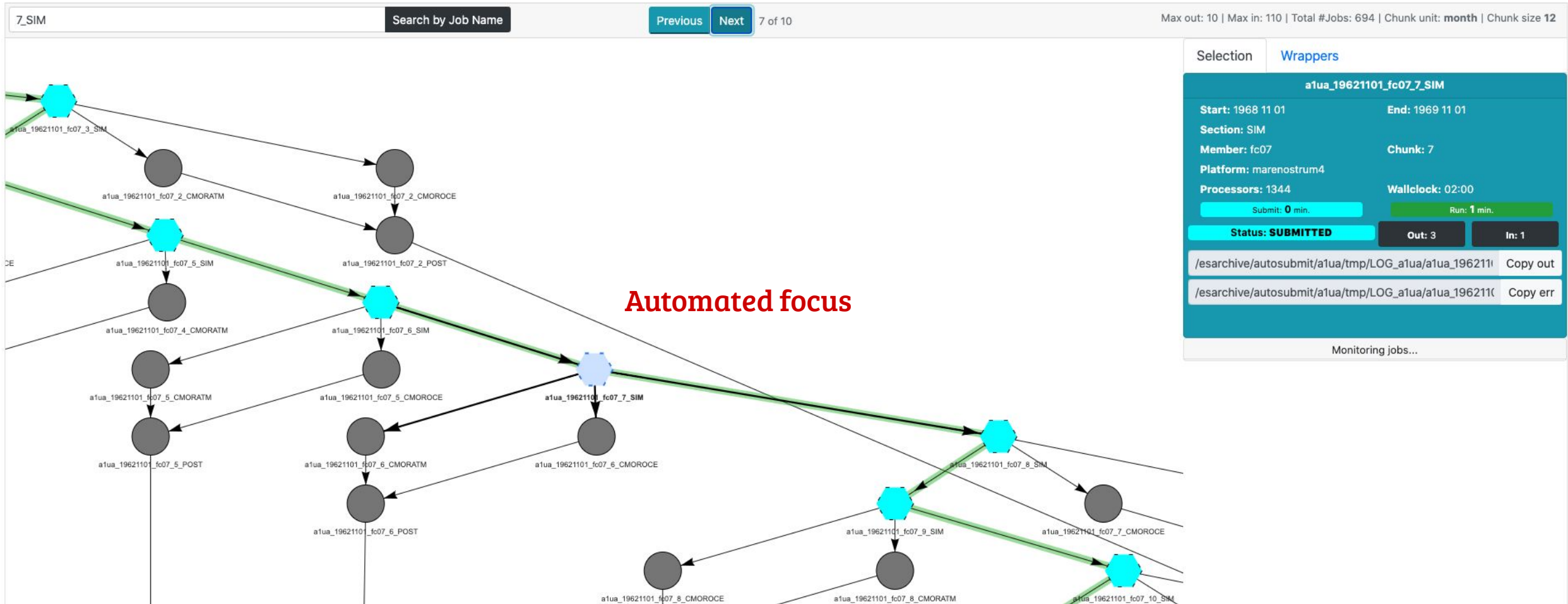
Graph Representation: Job Search I



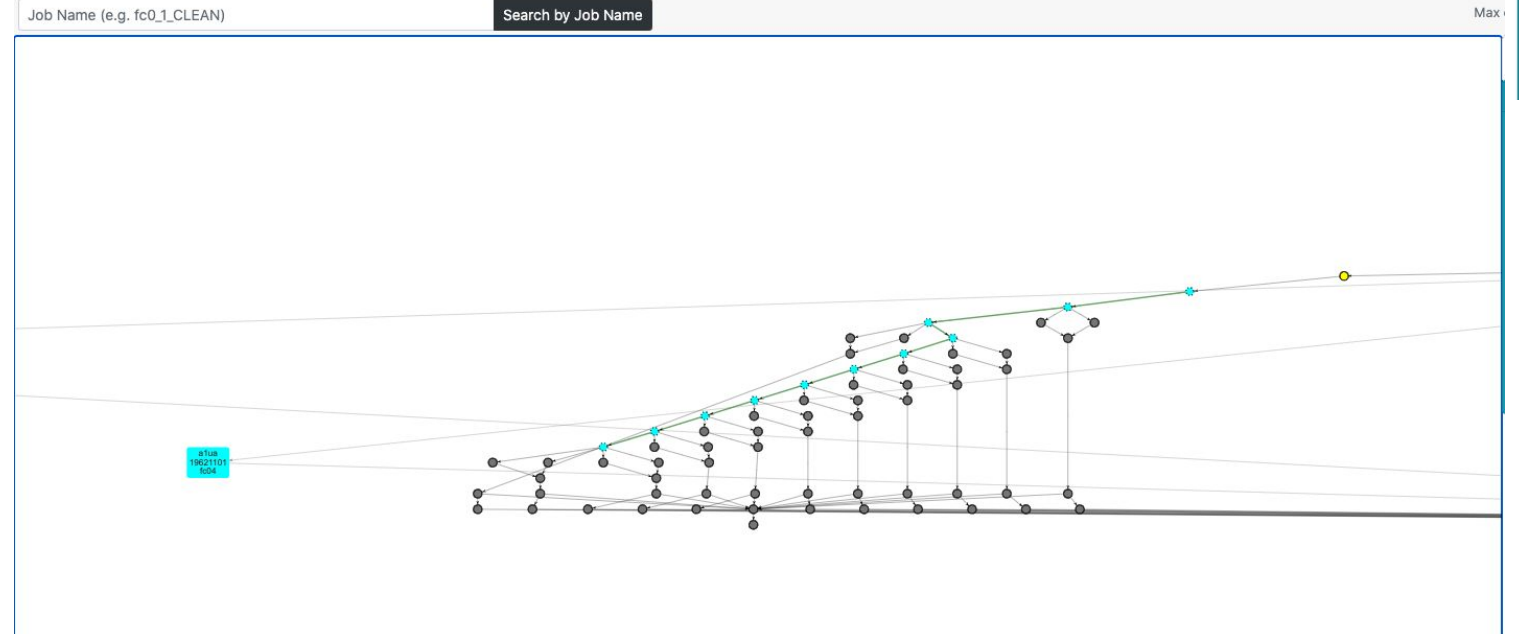
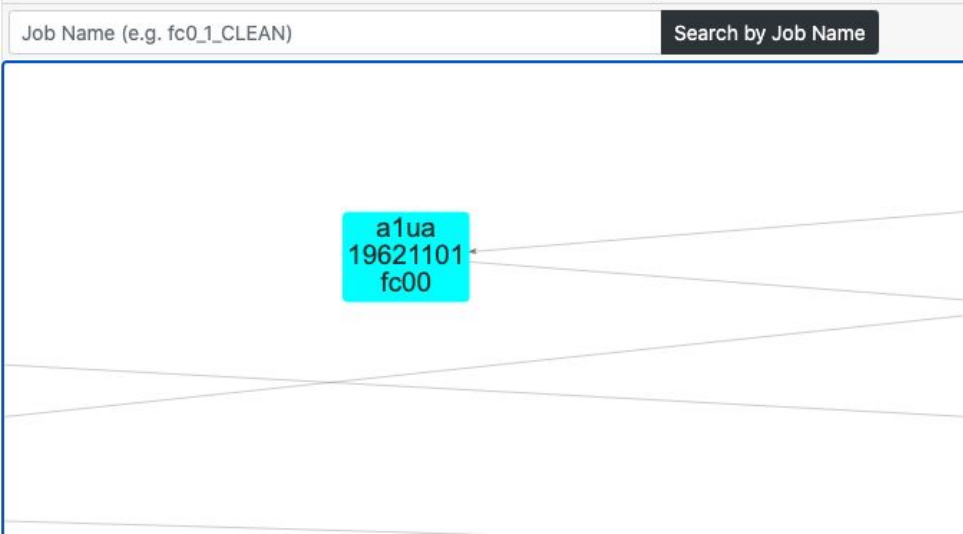
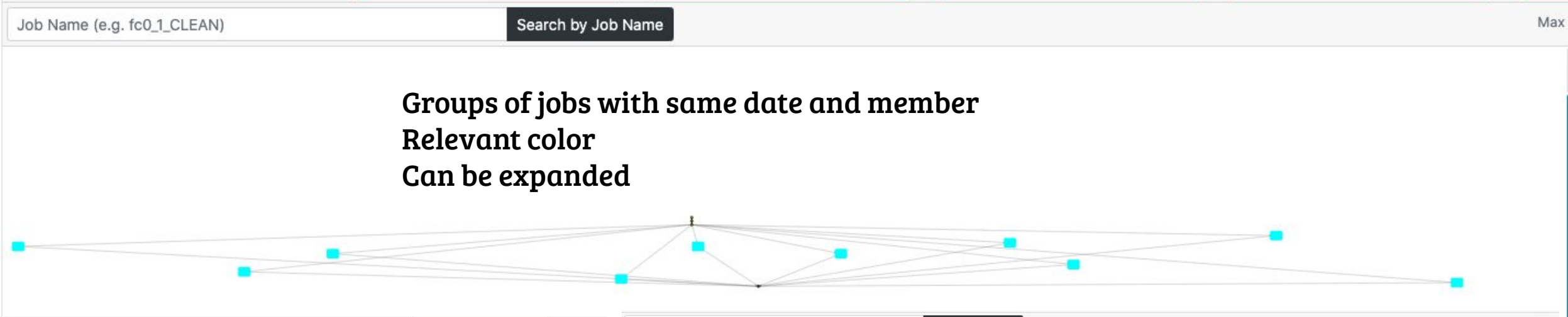
Graph Representation: Job Search II



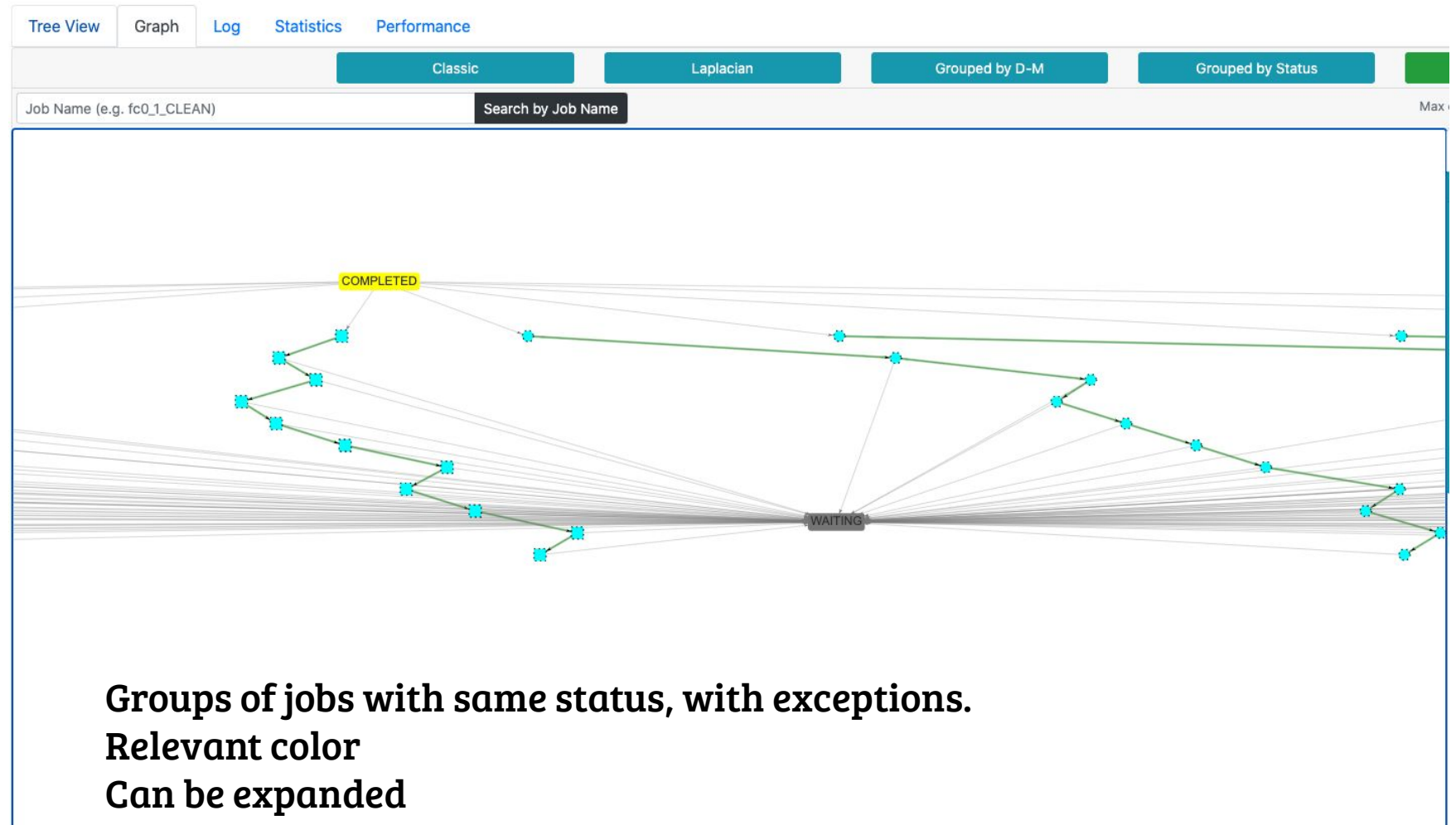
Graph Representation: Job Search III



Graph Representation: Grouped by Date-Member



Graph Representation: Grouped by Status



Graph Representation: Spectral Graph Layout

Tree View Graph Log Statistics Performance

Classic

Laplacian

Grouped by D-M

Grouped by Status

Refresh

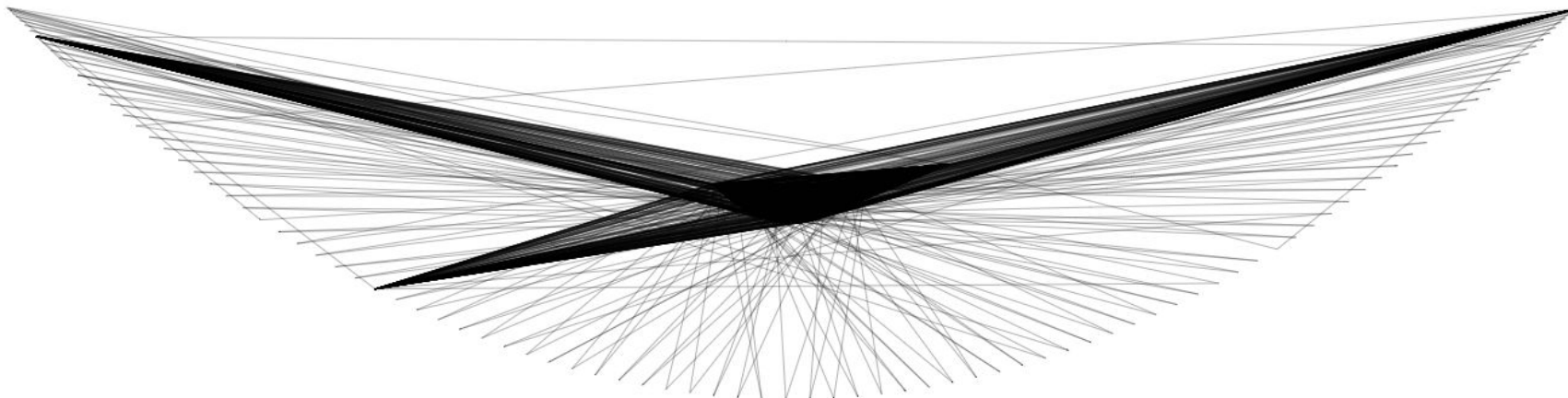
Start Job Monitor

Job Name (e.g. fc0_1_CLEAN)

Search by Job Name

Max out: 100 | Max in: 100 | Total #Jobs: 10202 | Chunk unit: month | Chunk size 1

The shape of your experiment



Selection [Wrappers](#)

a27g_19600101_fc0000_49_SIM

Start: 1964 01 01 End: 1964 02 01
Section: SIM
Member: fc0000 Chunk: 49
Platform: marenostrum4
Processors: 1 Wallclock: 00:30

Submit: 362 min. Run: 1 min.

Status: **SUBMITTED** Out: 1 In: 1

/esarchive/autosubmit/a27g/tmp/LOG_a27g/a27g_19600 Copy out

/esarchive/autosubmit/a27g/tmp/LOG_a27g/a27g_19600 Copy err

Waiting

Ready

Prepared

Submitted

Queue

Running

Completed

Failed

Suspended

Unknown

Hold

← CLICKABLE

Autosubmit Log: General Description

Tree View Graph Log Statistics Performance

Show Log

Press **Show Log** to see the last 50 lines of the running log of this experiment. If the experiment is running, the log will update automatically.

Tree View Graph Log Statistics Performance

Hide Log

Logfile: 20190919_125823_run.log (1569361476.4284258)

Last Modified: 2019-09-24 21:44:36

```
2019-09-24 23:44:25,855 Number of jobs ready: 0
2019-09-24 23:44:25,855 Number of jobs available: 100
2019-09-24 23:44:25,858
Jobs ready for marenostrum4: 0
2019-09-24 23:44:25,867 Number of jobs ready: 0
2019-09-24 23:44:25,867 Number of jobs available: 100
2019-09-24 23:44:25,874
Jobs ready for transfer node: 0
2019-09-24 23:44:25,882 Number of jobs ready: 0
2019-09-24 23:44:25,882 Number of jobs available: 100
2019-09-24 23:44:25,886 Saving JobList: /esarchive/autosubmit/a1ua/pk1/job_list_a1ua.pk1
2019-09-24 23:44:25,920 Job list saved
2019-09-24 23:44:30,933 Reloading parameters...
2019-09-24 23:44:30,945 Loading parameters...
2019-09-24 23:44:30,946 Loading project parameters...
2019-09-24 23:44:30,948
1 of 1384 jobs remaining (23:44)
2019-09-24 23:44:30,948 Sleep: 5
2019-09-24 23:44:30,948 Number of retrials: 2
2019-09-24 23:44:30,948 WRAPPER CHECK TIME = 5
2019-09-24 23:44:30,981 Command 'nohup kill -0 22641 >& /dev/null; echo $?': 1
2019-09-24 23:44:30,981 Successful check job command: nohup kill -0 22641 >& /dev/null; echo $?
2019-09-24 23:44:30,982 This job seems to have completed: checking...
2019-09-24 23:44:31,007 Job a1ua_PERFORMANCE_METRICS is COMPLETED
2019-09-24 23:44:31,056 a1ua_PERFORMANCE_METRICS_STAT file have been transfered
2019-09-24 23:44:31,083 Updating FAILED jobs
2019-09-24 23:44:31,084 Update finished
2019-09-24 23:44:31,084 Updating WAITING jobs
2019-09-24 23:44:31,085 Update finished
2019-09-24 23:44:31,086 Saving JobList: /esarchive/autosubmit/a1ua/pk1/job_list_a1ua.pk1
2019-09-24 23:44:31,147 Job list saved
2019-09-24 23:44:31,157
Jobs ready for local: 0
2019-09-24 23:44:31,165 Number of jobs ready: 0
2019-09-24 23:44:31,165 Number of jobs available: 100
2019-09-24 23:44:31,169
Jobs ready for marenostrum4: 0
2019-09-24 23:44:31,179 Number of jobs ready: 0
2019-09-24 23:44:31,179 Number of jobs available: 100
2019-09-24 23:44:31,185
Jobs ready for transfer node: 0
2019-09-24 23:44:31,193 Number of jobs ready: 0
2019-09-24 23:44:31,193 Number of jobs available: 100
2019-09-24 23:44:31,197 Saving JobList: /esarchive/autosubmit/a1ua/pk1/job_list_a1ua.pk1
2019-09-24 23:44:31,239 Job list saved
2019-09-24 23:44:36,252 No more jobs to run.
2019-09-24 23:44:36,252 Run successful
```

Showing last 150 lines.

Activate Selection Mode

Autosubmit Statistics: Filter Options

Section	Hours	Get Statistics
---------	-------	-----------------------

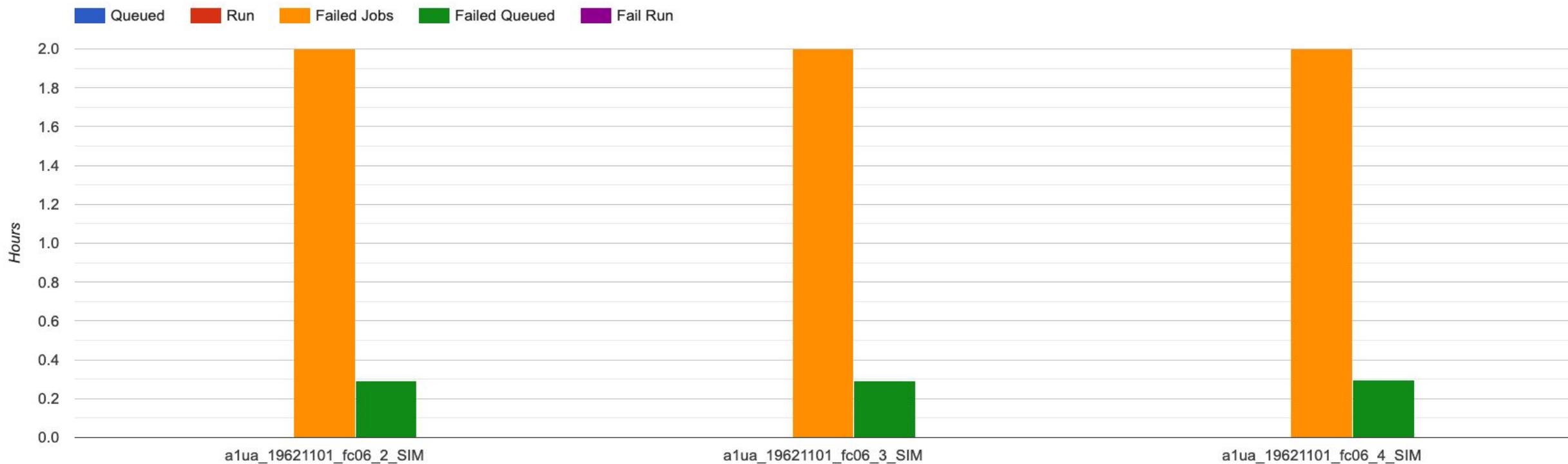
Supply a Section (Type) in the appropriate textbox to filter the jobs that will be included in the query. Also, you can also supply the Hours value that determines how many hours before the current time you want to query. Leave both empty and a query for Any Section since the date of creation of the experiment will be executed.

Press **Get Statistics** to generate the statistics, this will generate a Bar Chart and some extra statistics below. Drag the mouse inside the chart to zoom in; however, zoom in capabilities are not unlimited, so try to narrow your query.

Short value for hours

Section = Job type

Autosubmit Statistics: Results I



Autosubmit Statistics: Results II

Period: 2020-06-15 13:56:00 ~ 2020-06-16 10:56:00

Submitted (#): 6

Run (#): 6

Failed (#): 6

Completed (#): 0

Queueing time (h): 0.0

Expected consumption real (h): 6.0

Expected consumption CPU time (h): 8064.0

Consumption real (h): 0.0

Consumption CPU time (h): 1.49

Consumption (%): 0.02

Performance Metrics: General Description

Tree View Graph Log Statistics Performance

Refresh

Parallelization: 768

SYPD: 32.3946

ASYPD: 29.9851

CHSY: 1471.51

Considered: (232)

1. a2t4_18500101_fc2_10_SIM | QUEUE: 52 | RUNNING: 7122 | CHSY: 1519.36
2. a2t4_18500101_fc2_11_SIM | QUEUE: 4 | RUNNING: 6837 | CHSY: 1458.56
3. a2t4_18500101_fc2_12_SIM | QUEUE: 26 | RUNNING: 6824 | CHSY: 1455.79
4. a2t4_18500101_fc2_13_SIM | QUEUE: 352 | RUNNING: 6765 | CHSY: 1443.2
5. a2t4_18500101_fc2_14_SIM | QUEUE: 54 | RUNNING: 6777 | CHSY: 1445.76
6. a2t4_18500101_fc2_15_SIM | QUEUE: 64 | RUNNING: 6795 | CHSY: 1449.6
7. a2t4_18500101_fc2_16_SIM | QUEUE: 84 | RUNNING: 7030 | CHSY: 1499.73
8. a2t4_18500101_fc2_17_SIM | QUEUE: 27975 | RUNNING: 6736 | CHSY: 1437.01
9. a2t4_18500101_fc2_18_SIM | QUEUE: 2065 | RUNNING: 6856 | CHSY: 1462.61
10. a2t4_18500101_fc2_19_SIM | QUEUE: 68 | RUNNING: 7083 | CHSY: 1511.04
11. a2t4_18500101_fc2_1_SIM | QUEUE: 370 | RUNNING: 6897 | CHSY: 1471.36
12. a2t4_18500101_fc2_2_SIM | QUEUE: 277 | RUNNING: 6975 | CHSY: 1488
13. a2t4_18500101_fc2_3_SIM | QUEUE: 9 | RUNNING: 6969 | CHSY: 1486.72
14. a2t4_18500101_fc2_4_SIM | QUEUE: 5 | RUNNING: 6768 | CHSY: 1443.84
15. a2t4_18500101_fc2_5_SIM | QUEUE: 928 | RUNNING: 6962 | CHSY: 1485.23
16. a2t4_18500101_fc2_6_SIM | QUEUE: 237 | RUNNING: 6820 | CHSY: 1454.93
17. a2t4_18500101_fc2_7_SIM | QUEUE: 471 | RUNNING: 6837 | CHSY: 1458.56
18. a2t4_18500101_fc2_8_SIM | QUEUE: 181 | RUNNING: 6880 | CHSY: 1467.73
19. a2t4_18500101_fc2_9_SIM | QUEUE: 147 | RUNNING: 6905 | CHSY: 1473.07
20. a2t4_31700101_fc2_100_SIM | QUEUE: 251 | RUNNING: 6903 | CHSY: 1472.64
21. a2t4_31700101_fc2_101_SIM | QUEUE: 200 | RUNNING: 7002 | CHSY: 1493.76

Metrics description:

Parallelization: Total number of cores allocated for the run, per SIM.

SYPD: Simulated years per day for the model in a 24 h period.

ASYPD: Actual SYPD: This number should be lower than SYPD due to interruptions, queue wait time, data transfer or issues with the model workflow. This is collected by measuring the time between first submission and the date of arrival of the last history file on the storage file system.

CHSY: Core hours per simulated year. This is measured as the product of the model runtime for 1 SY and the number of cores allocated. This is an average of the CHSY of all SIM jobs.

Considered: Scrollable list where each item in the list is a job that shows *job name*, *QUEUE time* in seconds, *RUNNING time* in seconds, and *CHSY* for that job.

Visit [Performance Metrics Documentation](#) for more details.

Activate Selection Mode

More tools: Command Generation I

- a2t4_31700101_fc2_242_SIM #WAITING
- a2t4_31700101_fc2_243_SIM #WAITING
- a2t4_31700101_fc2_244_SIM #WAITING
- a2t4_31700101_fc2_245_SIM #WAITING
- a2t4_31700101_fc2_246_SIM #WAITING
- a2t4_31700101_fc2_247_SIM #WAITING
- a2t4_31700101_fc2_248_SIM #WAITING

Activate -> Select -> Generate Command

Activate Selection Mode

- a2t4_31700101_fc2_242_SIM #WAITING
- a2t4_31700101_fc2_243_SIM #WAITING
- a2t4_31700101_fc2_244_SIM #WAITING
- a2t4_31700101_fc2_245_SIM #WAITING
- a2t4_31700101_fc2_246_SIM #WAITING
- a2t4_31700101_fc2_247_SIM #WAITING
- a2t4_31700101_fc2_248_SIM #WAITING

Generate Command

Deactivate Selection Mode

More tools: Command Generation II

Generate Command

a2t4_31700101_fc2_237_SIM

a2t4_31700101_fc2_236_SIM

a2t4_31700101_fc2_234_SIM

a2t4_31700101_fc2_233_SIM

Deactivate Selection Mode

Generate Command

a2t4_31700101_fc2_237_SIM

a2t4_31700101_fc2_236_SIM

a2t4_31700101_fc2_233_SIM

Deactivate Selection Mode

To: Ready Waiting Completed Suspended Failed

Close

More tools: Command Generation III

To: Ready Waiting Completed Suspended Failed

```
autosubmit setstatus a2t4 -fl  
"a2t4_31700101_fc2_237_SIM a2t4_31700101_fc2_236_SIM  
a2t4_31700101_fc2_233_SIM" -t COMPLETED -s -nt -np
```

Copy to Clipboard

Close

To: Ready Waiting Completed Suspended Failed

```
autosubmit setstatus a2t4 -fl  
"a2t4_31700101_fc2_237_SIM a2t4_31700101_fc2_236_SIM  
a2t4_31700101_fc2_233_SIM" -t SUSPENDED -s -nt -np
```

Copy to Clipboard

Close

Copy to Clipboard -> Paste

```
(base) BleuDChan@MacBook-Pro ~ % autosubmit setstatus a2t4 -fl "a2t4_31700101_fc2_237_SIM a2t4_31700101_fc2_236_SIM a2t4_31700101_fc2_233_SIM" -t SUSPENDED -s -nt -np
```

Experimental Feature

URL Automation:

<https://earth.bsc.es/autosubmitapp/experiment/a0yh/graph>

Loads and focus on Graph Representation.

How to save time with Autosubmit (Autosubmit Wrappers)



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Autosubmit - Wrappers

The idea is that any use case has a wrapper to speed up the workflow

Dimension	Vertical 1D	Vertical > 1D	
Horizontal 1D	-----	Vertical wrapper Speed up sequential chunks	
Horizontal > 1D	Horizontal wrapper Run independent jobs in parallel	Horizontal-vertical Speed up sequential series of parallel independent jobs	Vertical-horizontal Speed up parallel series of sequential chunks

Autosubmit - Wrappers - Configuration

Wrapper configuration is set in autosubmit.conf. [wrapper]

Parameters

Type: Allows to select an wrapper approach.

JOBS_IN_WRAPPER: Sections that will be included on the wrapper.

MIN_WRAPPED : Minimum wrapper size.

MAX_WRAPPED : Maximum wrapper size.

MACHINESFILES : STANDARD

METHOD : Select between MACHINESFILES or Shared-Memory.

Queue : Select the wrapper queue.

Types Guideline

Vertical: Most appropriate when there are many sequential jobs.

Horizontal: Most appropriate when there are multiple ensemble members. Can be used with machines files or shared-memory.

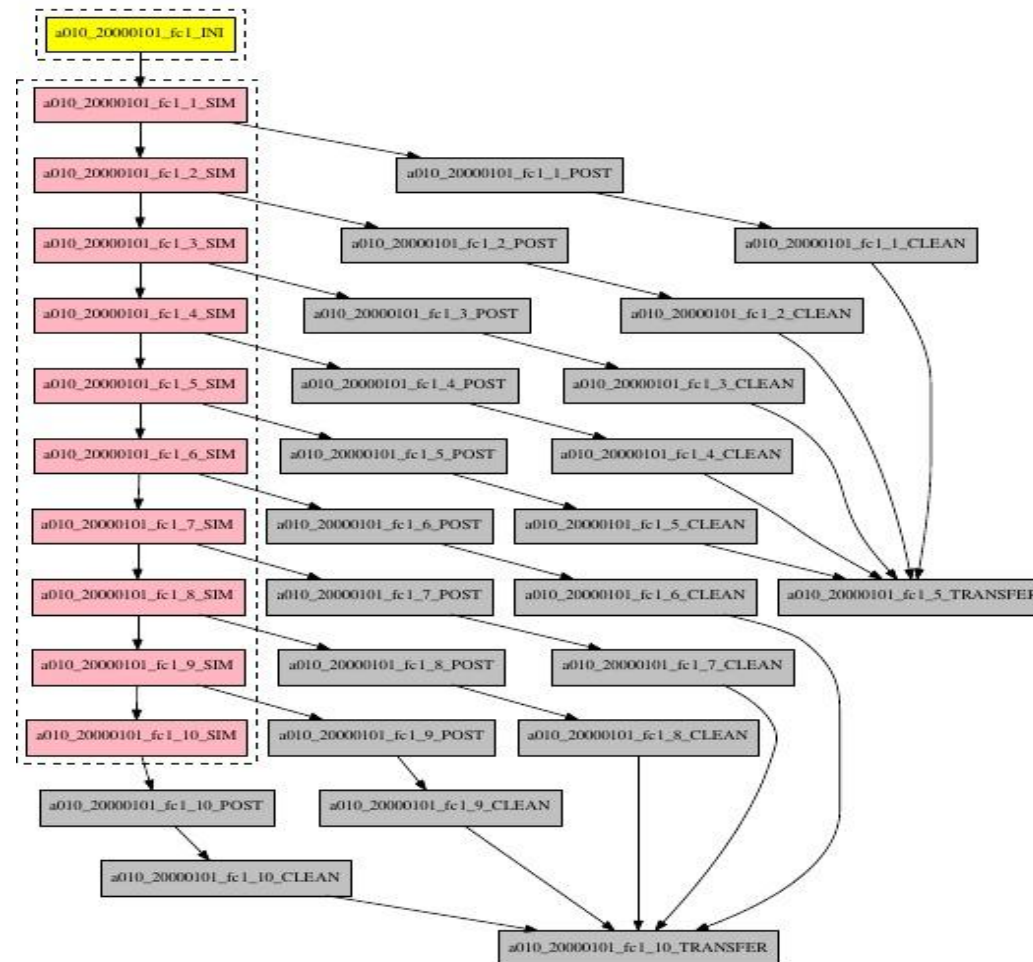
Horizontal-vertical: Most Appropriated to run shared-memory jobs or run different jobs with different wallclock.

Vertical-horizontal: Appropriated to run different ensembles sequentially.

Autosubmit - Wrappers - Workflow

Motivation: to **improve** the throughput by **reducing** queueing **time** by wrapping different jobs together.

[wrapper]
Type = vertical
JOBS_IN_WRAPPER = SIM



Autosubmit - Wrapper - Workflow

[wrapper]

Type = vertical-mixed

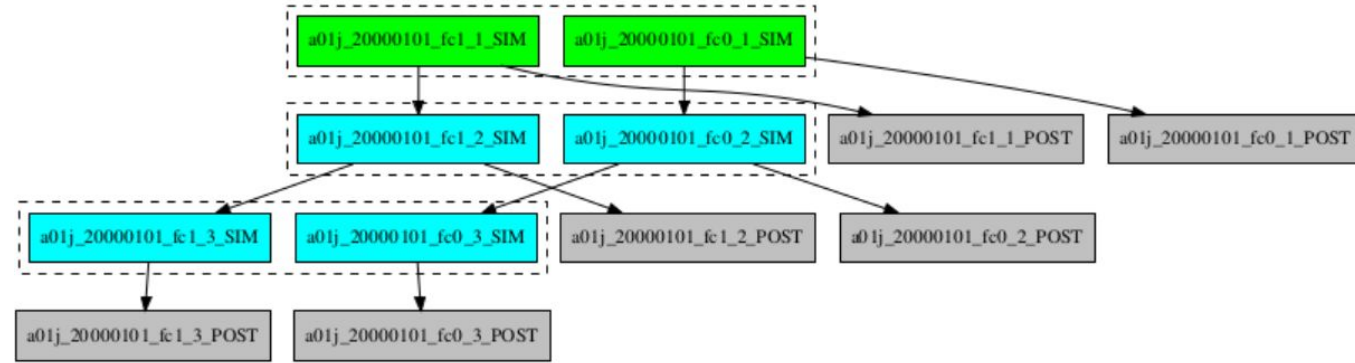
JOBS_IN_WRAPPER = SIM POST



[wrapper]

Type = horizontal

JOBS_IN_WRAPPER = SIM

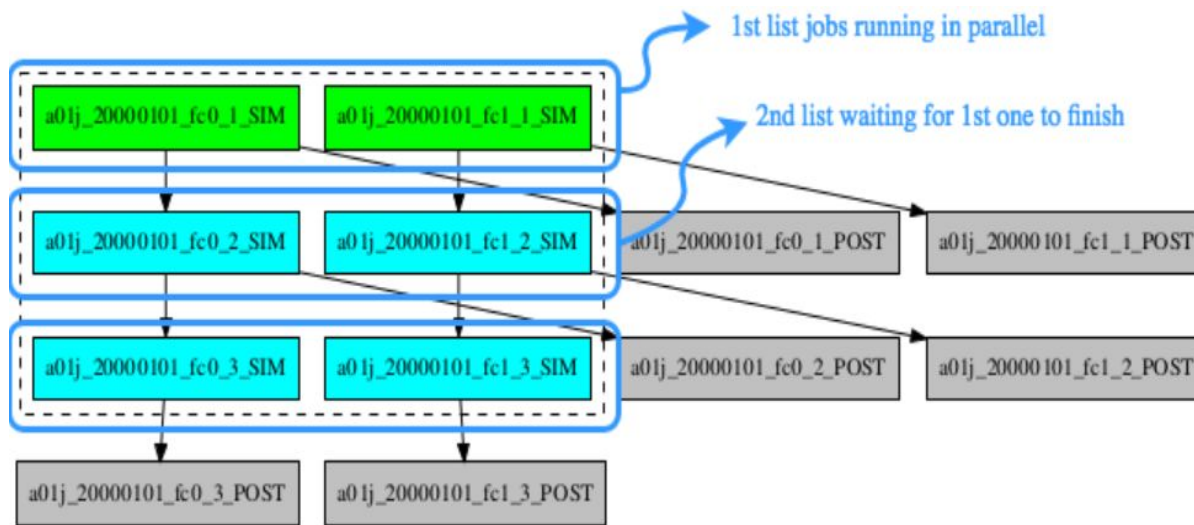


Autosubmit - Wrapper - Workflow

```
[wrapper]
```

```
TYPE = horizontal-vertical
```

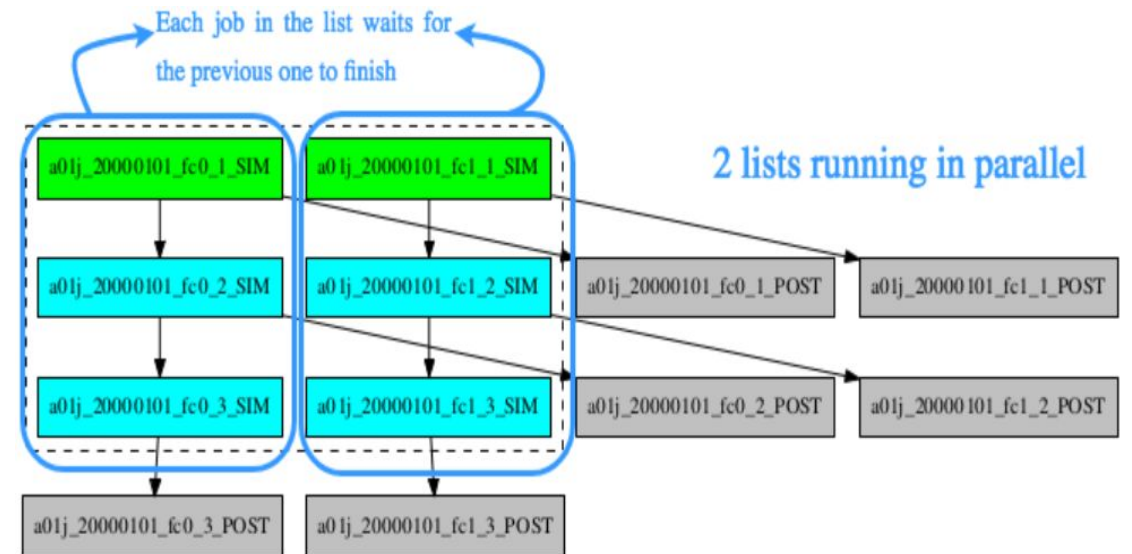
```
JOBS_IN_WRAPPER = SIM
```



```
[wrapper]
```

```
TYPE = vertical-horizontal
```

```
JOBS_IN_WRAPPER = SIM
```



Future plans & suggestions



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Future plans

Short-Medium term:

- Performance metrics.
- Improve monitoring efficiency.
- Improve log system.
- Improve exception management.
- Improve statistics.
- Different wrappers in the same workflow.

GUI2.0:

- Pre processing more computationally heavy operations.
- More data from schedulers (Slurm).
- Expand Command Generation tools.
- Improve floorplanning of the Autosubmit GUI.
- Start design of the architecture that will allow you to launch, modify, manage experiments from the GUI.

Autosubmit4:

- Python3
- New configuration system
 - Hierarchical
 - Favouring config validation
- Dynamic workflows
 - Add lists of parameters in the same job.
 - Action on event (increase wallclock on failure).
 - Groups of experiments.

Suggestions

Get involved or contact us:	
Autosubmit GitLab:	https://earth.bsc.es/gitlab/es/autosubmit
Autosubmit Mailing List:	autosubmit@bsc.es



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Thank you for your time

daniel.beltran@bsc.es, miguel.castrillo@bsc.es, wilmer.uruchi@bsc.es