

ecFlowUI

Introduction to ECMWF computing services

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The screenshot displays the ecFlowUI (4.7.1) interface. The top menu includes File, Panels, Refresh, Servers, Tools, and Help. The main window is divided into several panes:

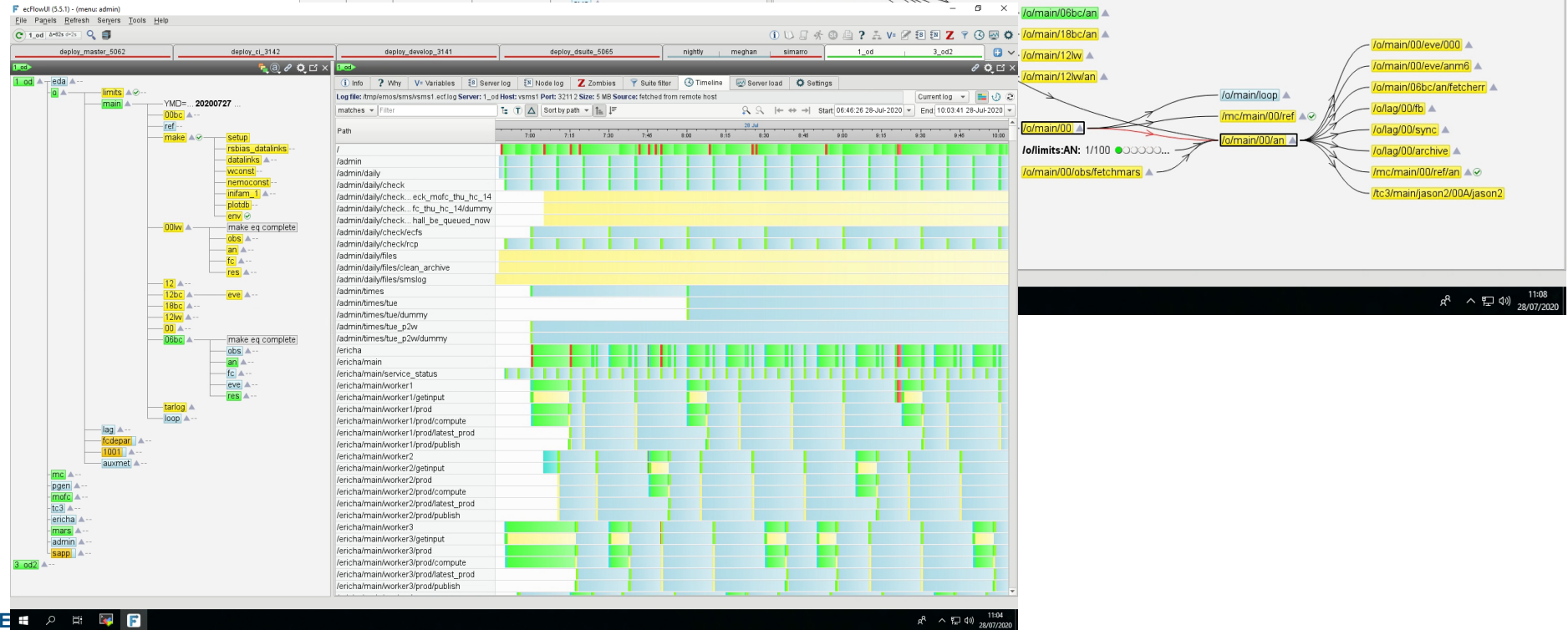
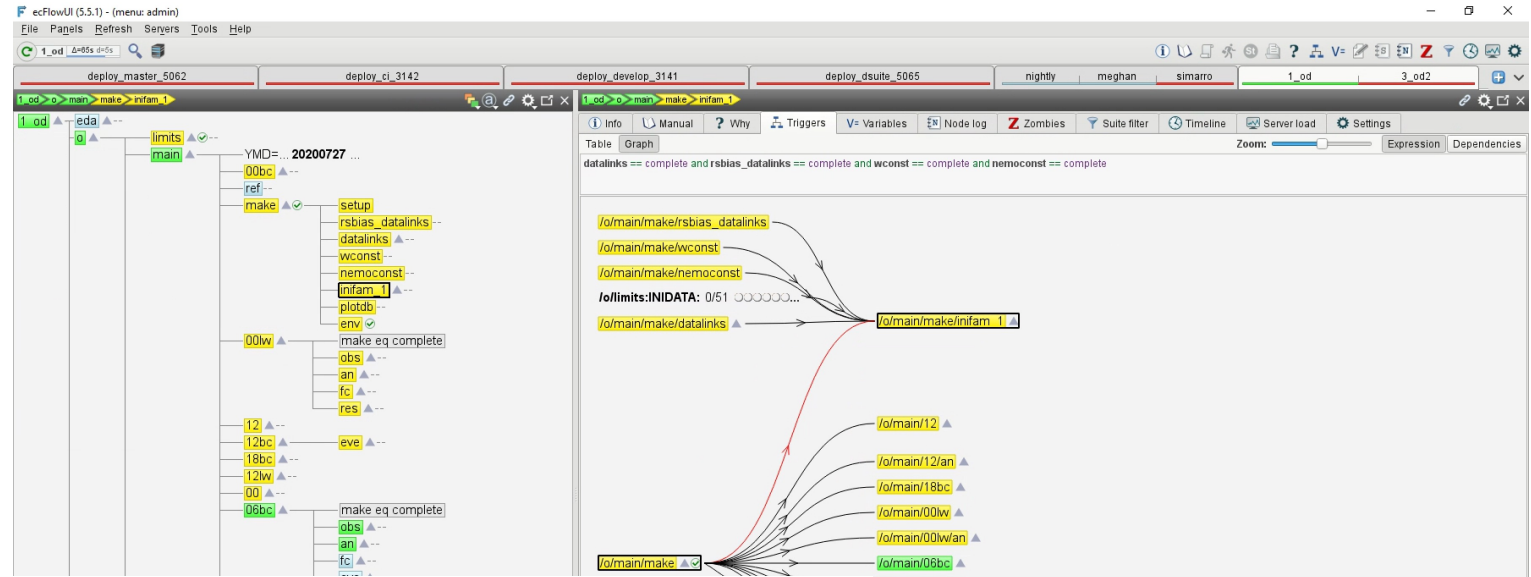
- Left Pane:** A tree view showing the job structure. The selected job is 'make_build_dir', which contains sub-jobs like 'var_summary', 'git_srcs', 'config', 'build', 'test', 'create_tarball', 'install', 'install_log', 'remove_write_perm', 'module_sync', 'wipe_build', 'lxc', 'sappb', 'cca', and 'ccb'.
- Center Pane:** A script editor showing the contents of the selected job. The script includes comments and shell commands such as `set -e`, `set -u`, `set -x`, and `echo "HOST = $(hostname)"`.
- Bottom Pane:** A table showing the status of various nodes in the workflow.

Node	Status	Type	Trigger	Label	Event	Meter	Status changed
/prodgen/cron/cron_monitor	queued	task					
/ecflow/test_local_actions/action1	suspended	task					
/ecflow/test_local_actions	suspended	family					
/ecflow/set_module_new	complete	task					2017-Nov-07 21:08
/ecflow/regenerate	complete	task					2017-Nov-07 16:24
/ecflow/localhost/intel/wipe_build	queued	task					2017-Nov-07 16:24

Additional information at the bottom of the interface includes a notification area showing 'Aborted' and 'Late' status, and a date indicator 'date: Tue 7 Nov'.

ecFlowUI

- User interface for ecFlow
- Desktop application
- Available on Linux + macOS



The user interface

- Multi window, multi tabbed
- Each tab has its own set of servers
- Dashboard approach
- Can have multiple panels per tab
- 3 panel types:
 - Tree
 - Table
 - Info

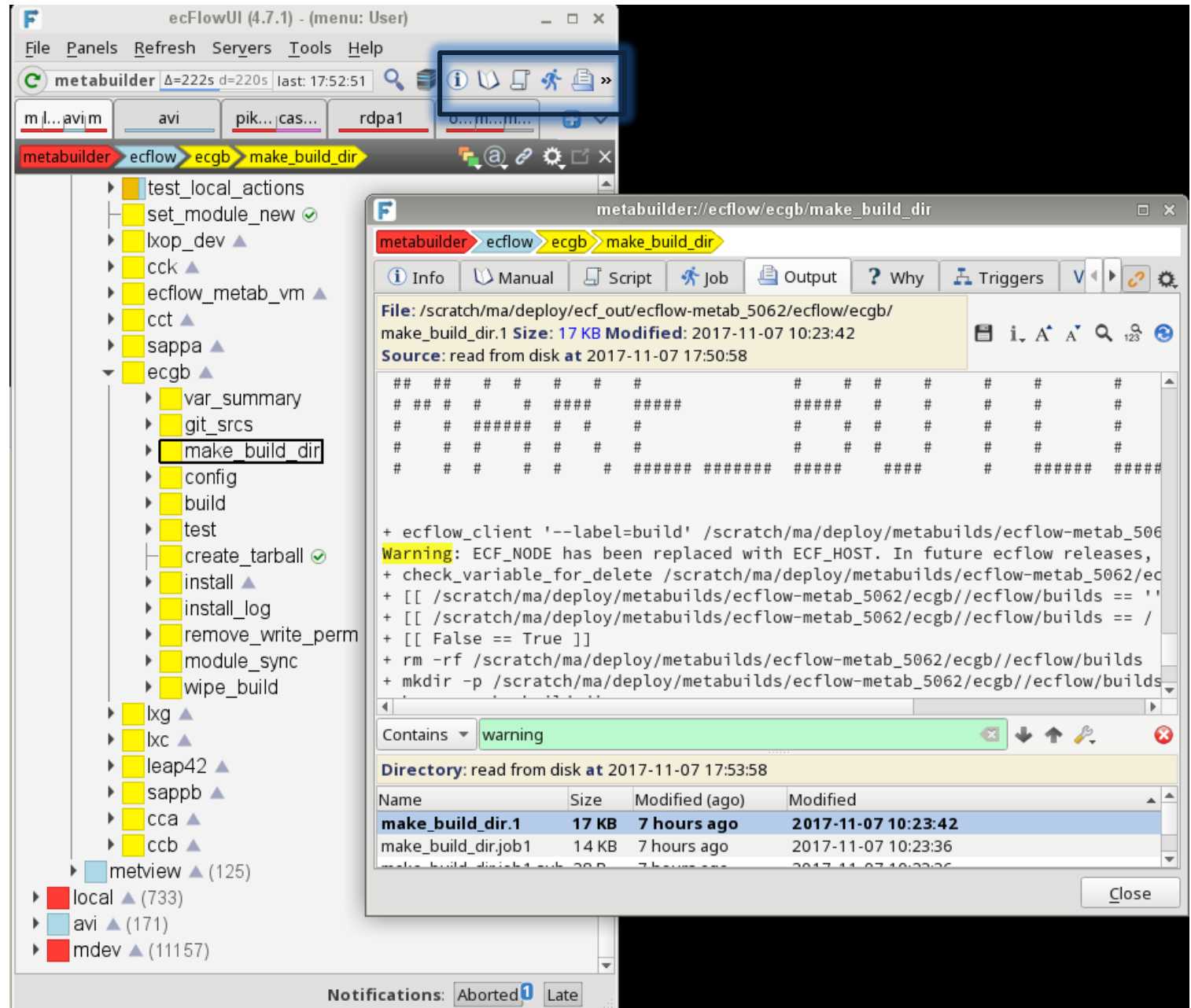
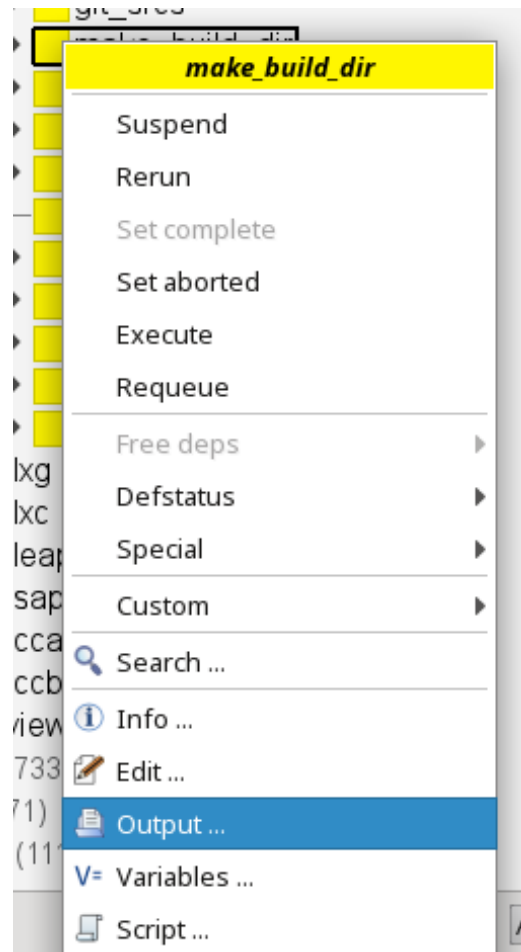
The screenshot displays the ecFlowUI (4.7.1) interface. The top window shows a multi-tabbed environment with tabs for 'meta...', 'local', 'avi', 'mdev', 'avi', 'pikachu', 'cassio', 'rdpa1', and 'odorir metabui...marsflow'. The active tab is 'make_build_dir'. The interface is divided into three main panels:

- Tree Panel:** A hierarchical file tree showing the structure of the 'make_build_dir' job. The tree includes folders like 'var_summary', 'git_srcs', 'make_build_dir', 'config', 'build', 'test', 'create_tarball', 'install', 'install_log', 'remove_write_perm', 'module_sync', 'wipe_build', 'lxg', 'lxc', 'leap42', 'sappb', 'cca', 'ccb', 'metview (125)', and 'local (733)'. The 'make_build_dir' folder is selected.
- Code Editor Panel:** A text editor showing the source code for the 'make_build_dir.job1' script. The code includes comments, shell commands, and environment variables. The source is identified as 'read from disk' and has a size of 14 KB, modified on 2017-11-07 at 10:23:36. The code includes a standard header with error handling and a date check.
- Table Panel:** A table displaying the status of various tasks. The table has columns for Node, Status, Type, Trigger, Label, Event, Meter, and Status changed. The tasks listed are:

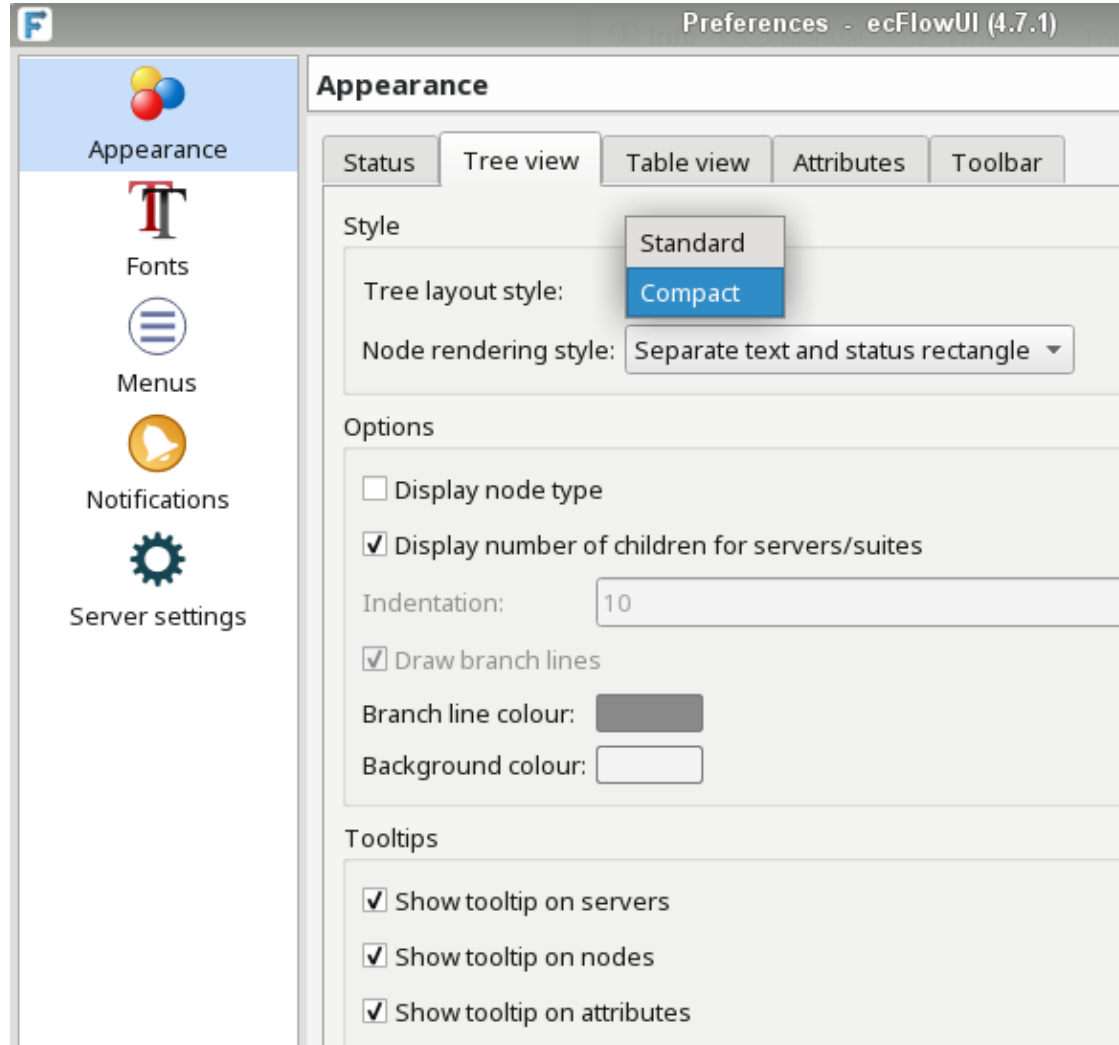
Node	Status	Type	Trigger	Label	Event	Meter	Status changed
/prodgen/cron/cron_monitor	queued	task					2017-Nov-07 21:08
/ecflow/test_local_actions/action1	suspended	task					2017-Nov-07 16:24
/ecflow/test_local_actions	suspended	family					2017-Nov-07 16:24
/ecflow/set_module_new	complete	task					2017-Nov-07 16:24
/ecflow/regenerate	complete	task				date: Tue 7 Nov	2017-Nov-07 16:24
/ecflow/localhost/intel/wipe_build	queued	task	install_log == complete				2017-Nov-07 16:24

At the bottom right, there are notification buttons for 'Aborted' and 'Late'.

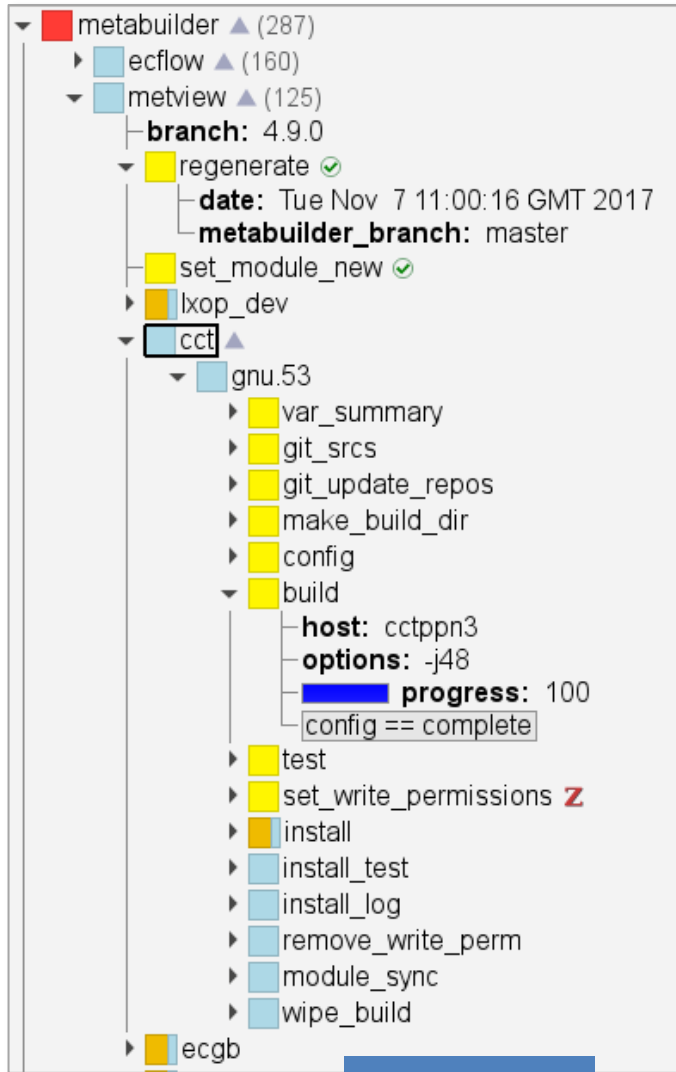
Floating Info Panels too



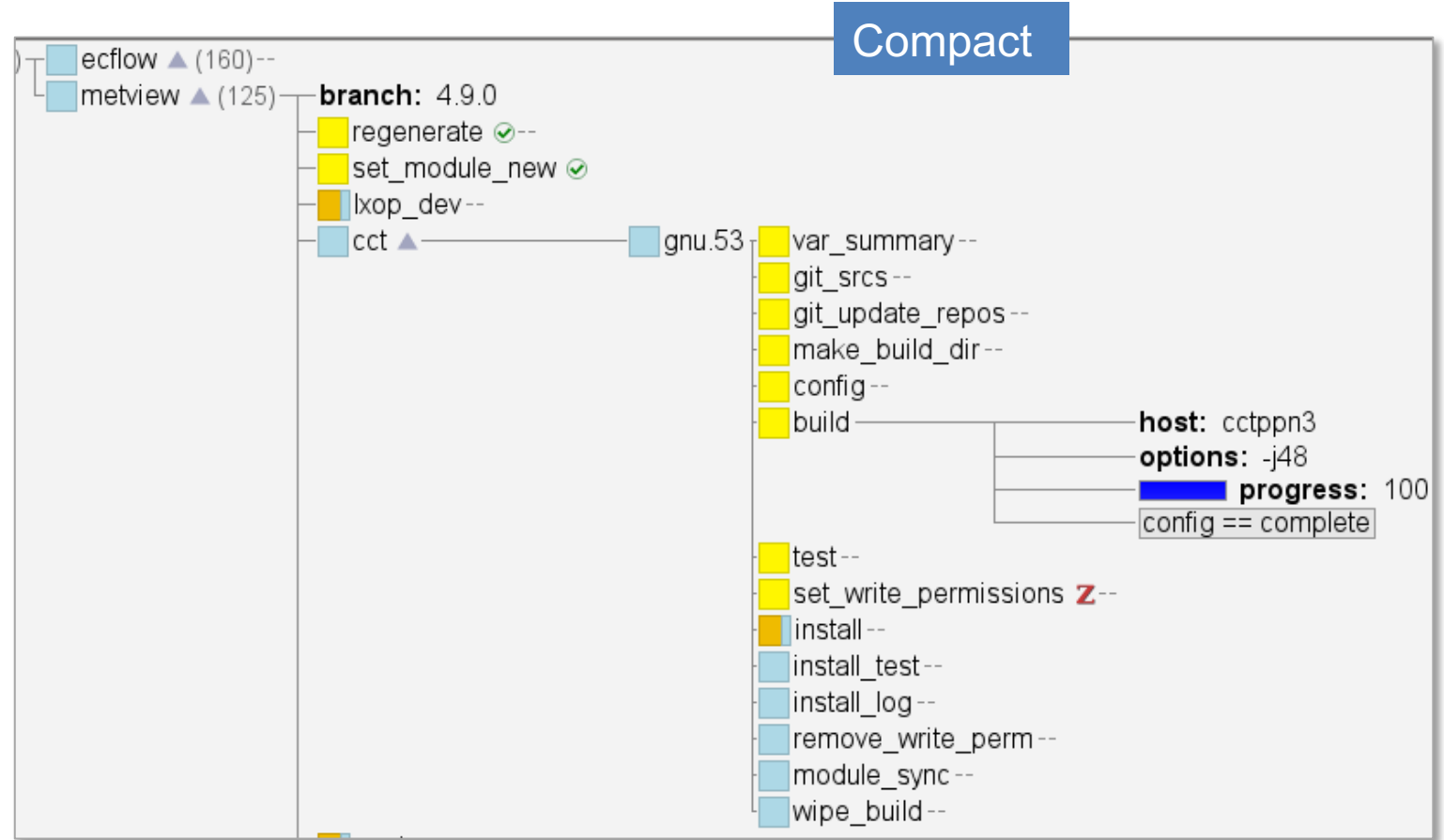
Highly configurable appearance



Standard and Compact tree views

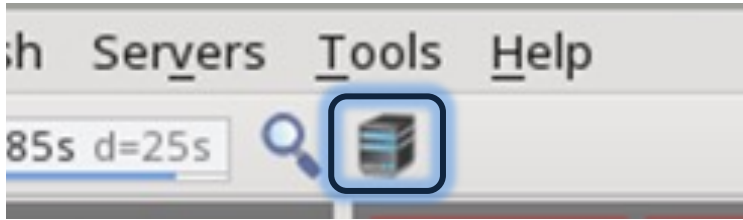


Standard



Compact

Servers



L	Name	Host	Port	S	F
<input checked="" type="checkbox"/>	1_od	vsms1	32112	Ⓢ	☆
<input type="checkbox"/>	3_od2	vsms2	32222	Ⓢ	☆
<input type="checkbox"/>	5_od3	vsms2	43333	Ⓢ	☆
<input type="checkbox"/>	avi	eurydice	4141		☆
<input checked="" type="checkbox"/>	freki_dev	cassio	4098		☆
<input type="checkbox"/>	freki_dev_1	cassio	4098		☆
<input checked="" type="checkbox"/>	freki_dev_5	cassio	4099		☆
<input checked="" type="checkbox"/>	freki_dev_5_ssl	cassio	4091		☆
<input checked="" type="checkbox"/>	metabuilder	ecflow-metab	5062		☆
<input type="checkbox"/>	metabuilder_dev	ecflow-metab	3141		☆
<input type="checkbox"/>	pikachu	pikachu	31415		☆
<input checked="" type="checkbox"/>	polonius	polonius	4141		☆
<input type="checkbox"/>	rdpa1	vecfrdpa1	11041	Ⓢ	☆
<input type="checkbox"/>	rdpa1_1	vecfrdpa1	11041		☆

Filter ☆ Favourites and loaded ⓘ

⚙ Edit server
+ Add server
Duplicate server
⊗ Remove server

Close

Servers Tools Help

Manage servers ... Ctrl+N

All servers ▶

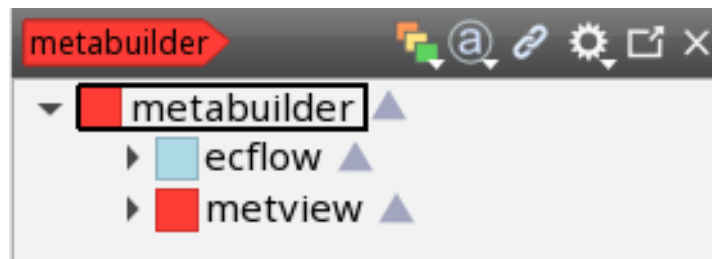
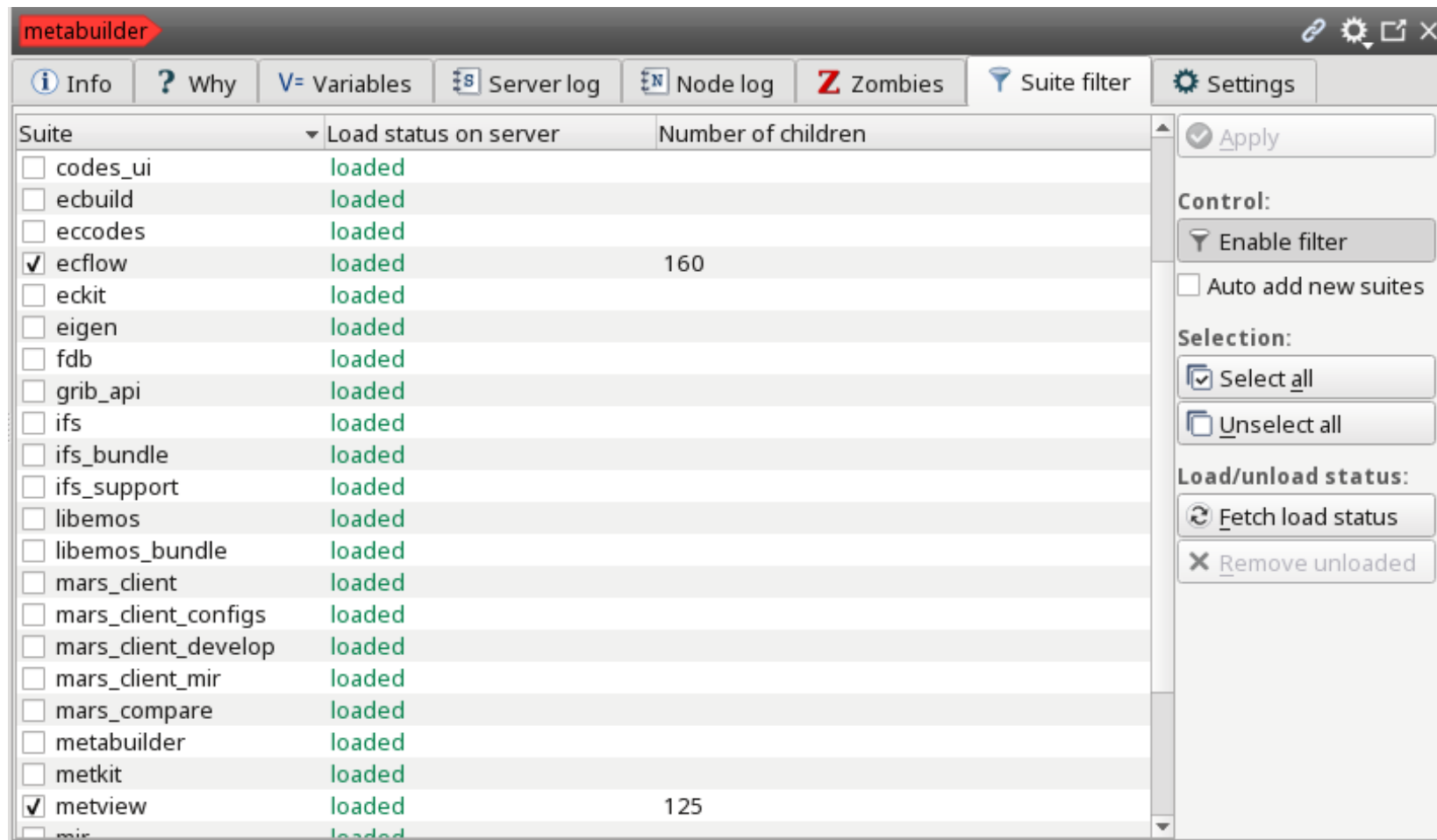
Favourite or loaded servers

- 1_od
- 3_od2
- 5_od3
- avi
- freki_dev**
- freki_dev_1
- freki_dev_5
- freki_dev_5_ssl
- metabuilder
- metabuilder_dev
- pikachu
- polonius
- rdpa1
- rdpa1_1

Server management dialogue allows selection of favourites for fast access in the Servers menu

Suite filters

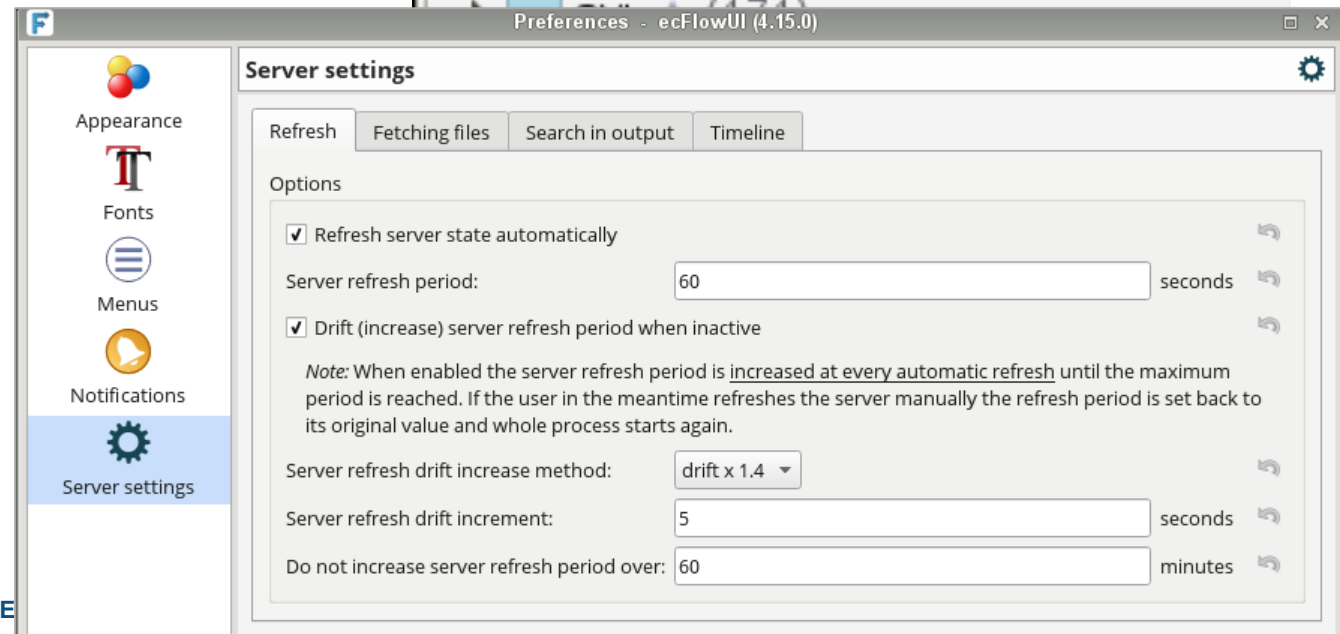
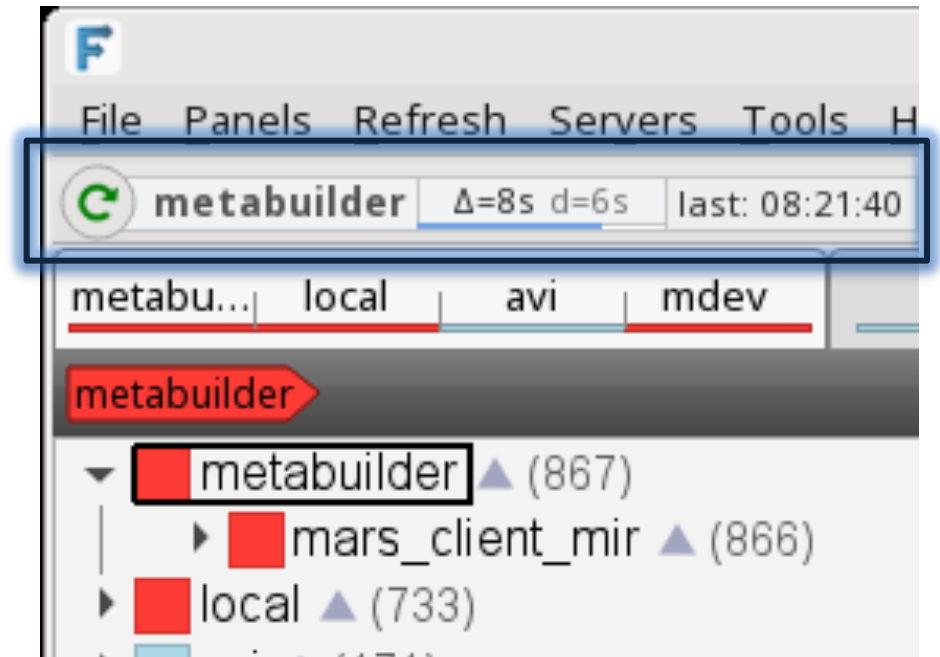
- A server can have lots of suites
- Maybe you're only interested in a few
- Use the Suite filter
 - reduces clutter on the display
 - reduces amount of data passed from server to client



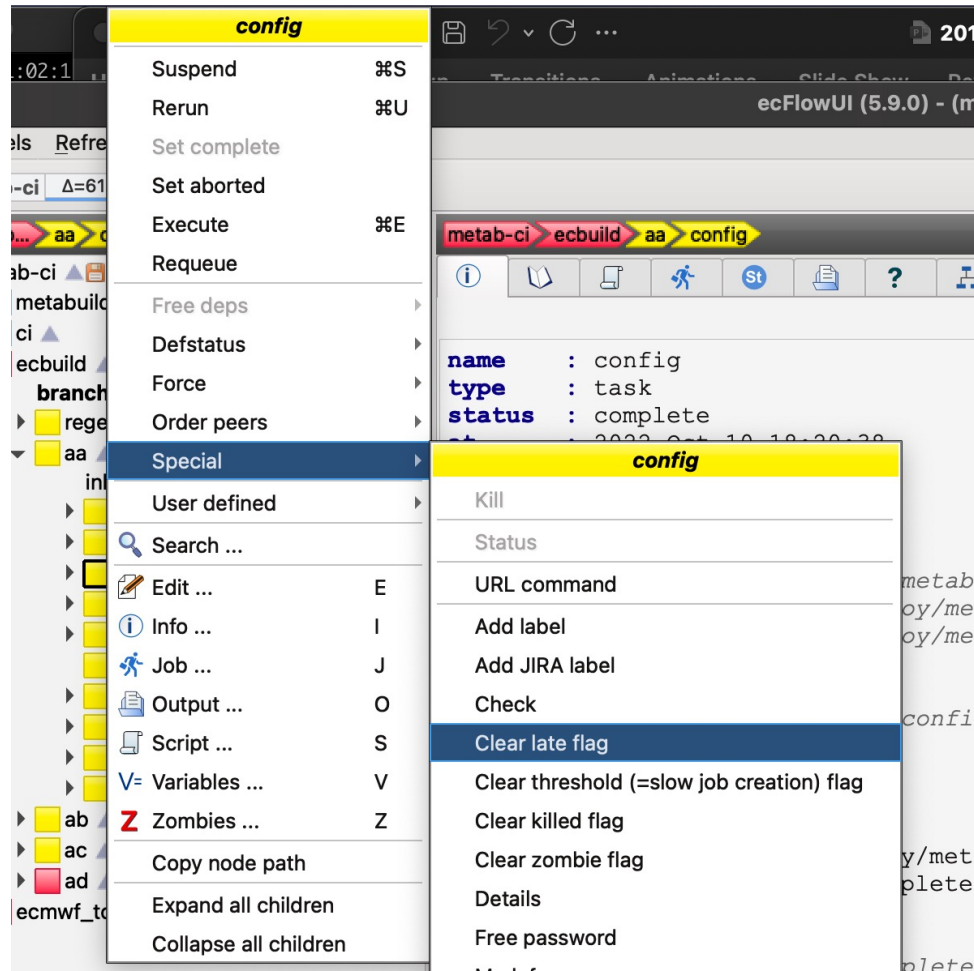
Refresh bar

- Shows how long until the next sync with the currently-selected server
- Green button (or F5) to manually refresh current server
- Frequent refresh – gives latest state of suites, but increases server load
- Indicates the *drift* time

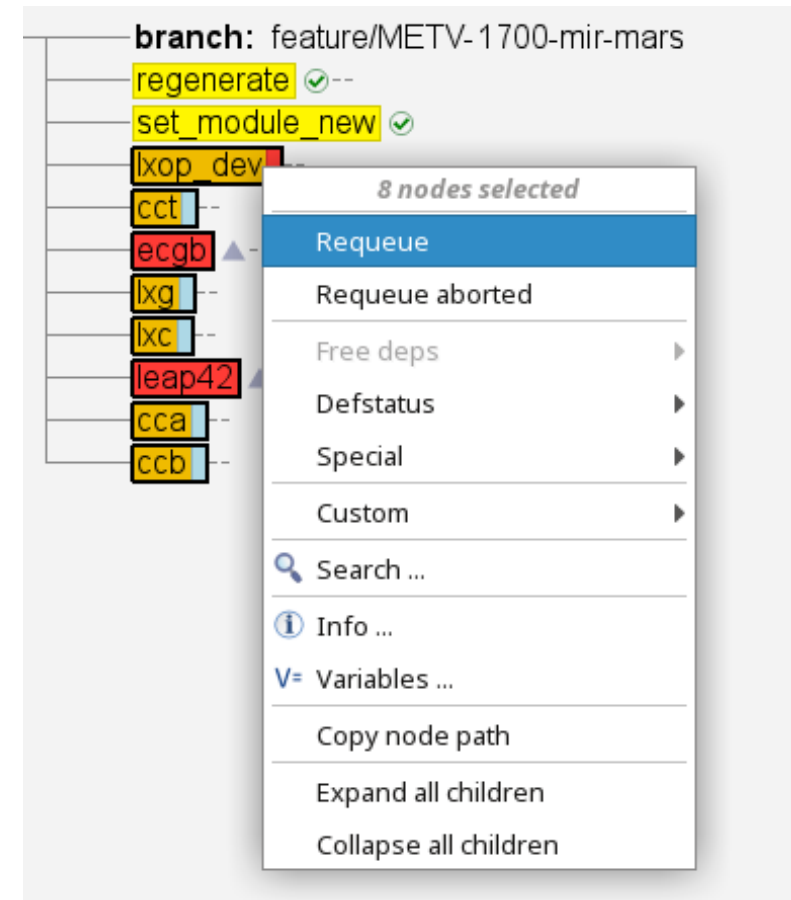
= the server sync period is automatically increased if there is no user interaction with a server



Node context menu

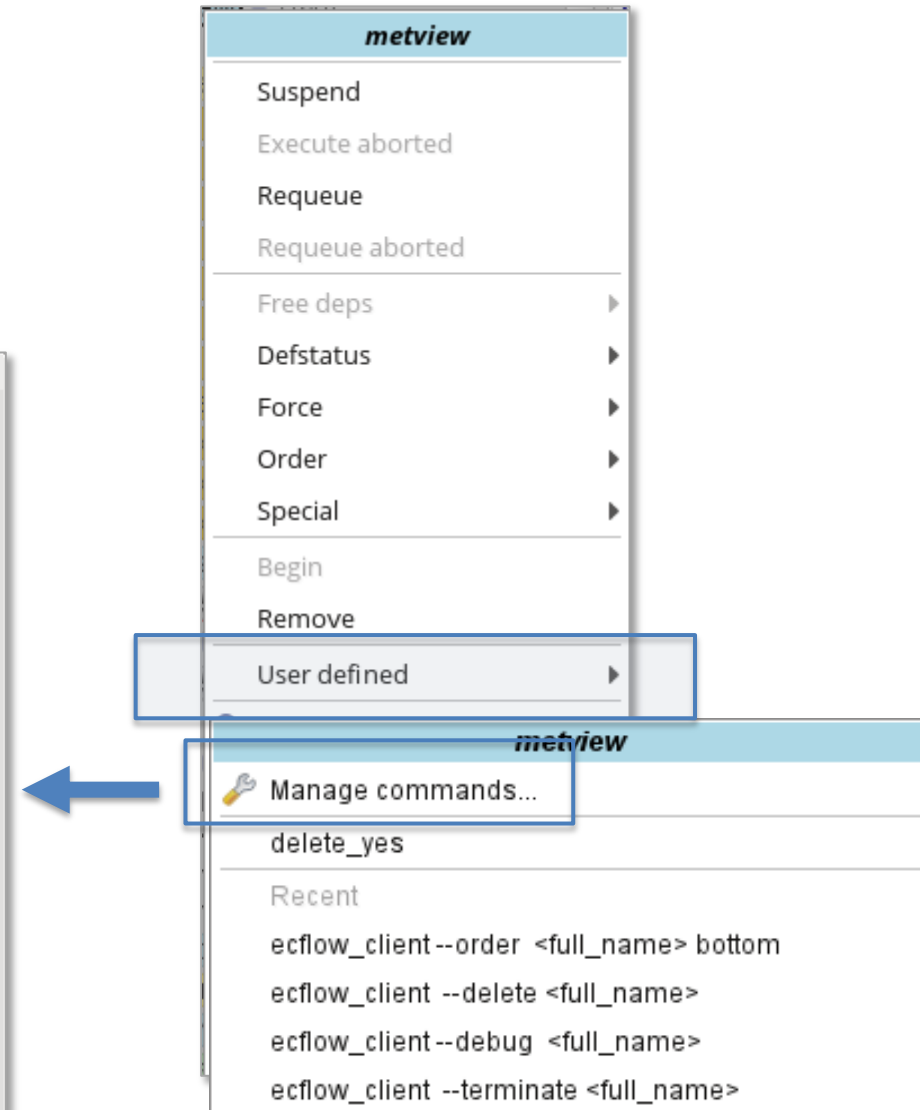
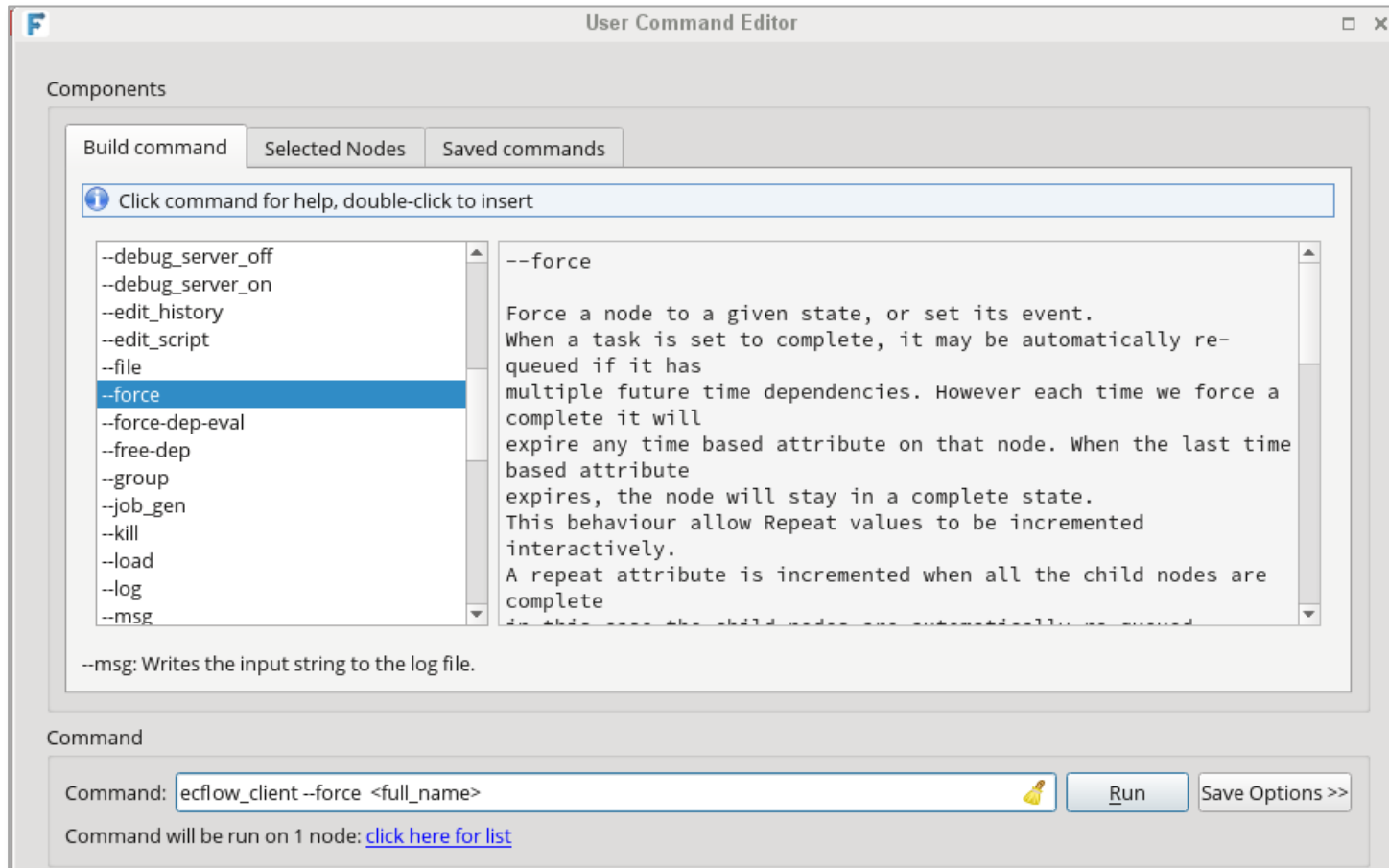


Use CTRL or SHIFT when clicking on nodes to select multiple nodes



User defined commands

- Node context menu provides node-sensitive commands
- Need for an editor to create and run commands



Node Search



Invoke from the toolbar, or from a node's context menu

The screenshot shows the 'Query' window in ecFlowUI (4.7.1). It includes a 'Scope' section with 'Search in servers' set to 'ALL' and 'Search root node' empty. 'Global options' show 'Max results' at 50000 and 'Case sensitive' unchecked. Search criteria include 'Name: Contains ANY' and 'Path: Matches *4dvar*'. The 'Type' list has 'family' and 'task' selected. The 'Status' list has 'aborted', 'active', and 'submitted' selected. The 'Flag' list has 'is_late', 'has_date', 'has_message', 'has_time', 'is_rerun', 'is_waiting', and 'is_zombie' selected. The 'Query' field contains: `SELECT node WHERE (node_path = '*4dvar*') and (family or task) and (aborted or active or submitted) LIMIT 50000`. The results table below shows 47 items with columns for Server, Node, State, Type, and Status changed.

Server	Node	State	Type	Status changed
rdpa1	/pae/gso2/an/main/lw12/an/4dvar	aborted	family	2017-Oct-12 06:28:00
rdpa1	/pae/gso2/an/main/lw12/an/4dvar/ifstraj_1	aborted	task	2017-Oct-12 06:28:00
rdpa1	/pad/gtgu/an/main/lw00/an/4dvar	active	family	2017-Nov-09 08:47:00
rdpa1	/pad/gtgu/an/main/lw00/an/4dvar/uptraj_1	active	family	2017-Nov-09 08:47:00
rdpa1	/pad/gtgu/an/main/lw00/an/4dvar/uptraj_2	active	task	2017-Nov-09 08:47:00
rdpa1	/wab/gtym/an/main/lw00/an/4dvar	submitted	family	2017-Nov-09 09:00:00
rdpa1	/wab/gtym/an/main/lw00/an/4dvar/uptraj_1	submitted	family	2017-Nov-09 09:00:00
rdpa1	/wab/gtym/an/main/lw00/an/4dvar/uptraj_2	submitted	task	2017-Nov-09 09:00:00
rdpa1	/wab/gtxz/an/main/lw12/an/4dvar	active	family	2017-Nov-09 07:41:00
rdpa1	/wab/gtxz/an/main/lw12/an/4dvar/uptraj_1	active	family	2017-Nov-09 08:20:00
rdpa1	/wab/gtxz/an/main/lw12/an/4dvar/uptraj_2	active	task	2017-Nov-09 08:20:00
rdpa1	/wab/gtwx/an/main/lw12/an/4dvar	active	family	2017-Nov-09 08:33:00
rdpa1	/wab/gtwx/an/main/lw12/an/4dvar/uptraj_1	active	family	2017-Nov-09 08:33:00
rdpa1	/wab/gtwx/an/main/lw12/an/4dvar/uptraj_2	active	task	2017-Nov-09 08:33:00
rdpa1	/wab/gtwv/an/main/lw12/an/4dvar	active	family	2017-Nov-09 08:33:00
rdpa1	/wab/gtwv/an/main/lw12/an/4dvar/uptraj_1	active	family	2017-Nov-09 08:47:00

Search parameters

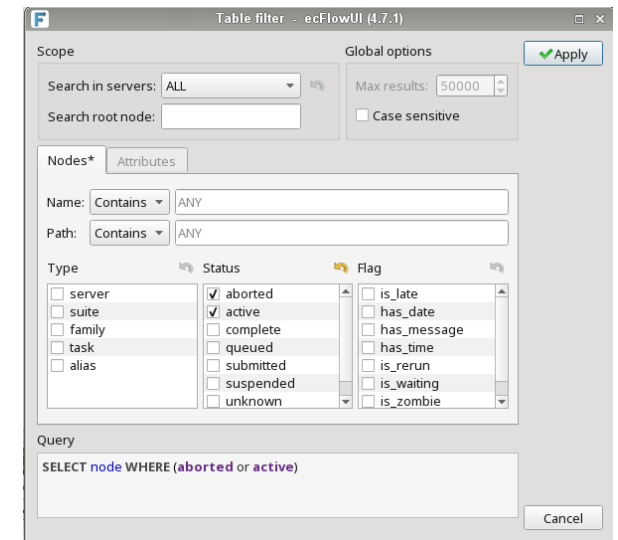
Generated query

Results

Can perform actions directly on the results

Table view

- Sortable table of nodes for all servers in current tab
- Intended to be used with a filter, otherwise can be slow



Node	Status	Type	Trigger	Label	Event	Meter	Status changed
/wab/gtwx/an/lag	aborted	family					2017-Nov-09 08:33:00
/wab/gtwx/an	aborted	family					2017-Nov-09 08:33:00
/wab/gtwx	aborted	family		infopsc: 'ccb'			2017-Nov-09 08:33:00
/wab/gtwv/an/main/lw12/an/4dva	active	task	ifstraj == complete				2017-Nov-09 08:47:00
/wab/gtwv/an/main/lw12/an/4dva	active	family	uptraj_0 == complete				2017-Nov-09 08:47:00
/wab/gtwv/an/main/lw12/an/4dva	active	family	odb == complete and vardata =				2017-Nov-09 08:33:00
/wab/gtwv/an/main/lw12/an	active	family	/wab/gtwv/an/obs/lw12 == cor				2017-Nov-09 08:33:00
/wab/gtwv/an/main/lw12	active	family					2017-Nov-09 07:54:00
/wab/gtwv/an/main/lw00/flong/n	active	task	getpersSST == complete AND info:			step: 120	2017-Nov-09 07:54:00

Output log

Can fetch output from remote server when the log-server is set up

Search (wildcard and regexp modes!)

List of files in output directory

Manual update

The screenshot shows a web-based interface for viewing an output log. At the top, there is a menu bar with options: Info, Manual, Script, Job, Output, Why, Triggers, Variables, Edit, Node log, Zombies, and Suite. Below the menu, the file path is shown: `File: /scratch/ma/deploy/ecf_out/ecflow-metab_5062/metview/ccb/gnu.73/build.1` with a size of 662 KB. The source information is: `Source: served by ccb-log1@9316 (took 0.2 s) at 2019-06-10 16:30:52`. The main area contains log output, including several `## INFO` lines detailing job settings and a `## INFO OUT` line. A search bar at the bottom of the log area contains the text `regex = \[vd+\]`. Below the log area is a table listing files in the output directory, updated at 2019-06-10 16:33:52.

Name	Path	Size	Modified (ago)	Modified	Source
build.1	/scratch/ma/deploy/ecf_out/ecflow-metab_5062/metview/ccb/gn...	662 KB	6 days ago	2019-06-04 15:32:23	served by ccb-log1@9316
build.job1.sub	/scratch/ma/deploy/ecf_out/ecflow-metab_5062/metview/ccb/gn...	15 B	6 days ago	2019-06-04 15:23:07	served by ccb-log1@9316
build.job1.SUB	/scratch/ma/deploy/ecf_out/ecflow-metab_5062/metview/ccb/gn...	15 KB	6 days ago	2019-06-04 15:23:07	served by ccb-log1@9316
build.job1	/scratch/ma/deploy/ecf_out/ecflow-metab_5062/metview/ccb/gn...	41 KB	6 days ago	2019-06-04 15:23:04	served by ccb-log1@9316

Variables

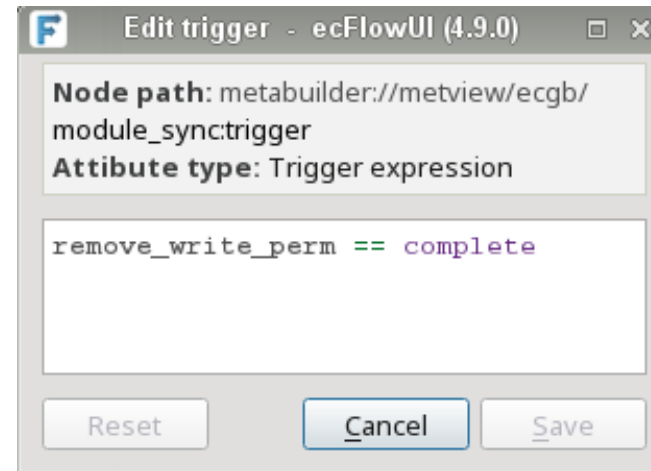
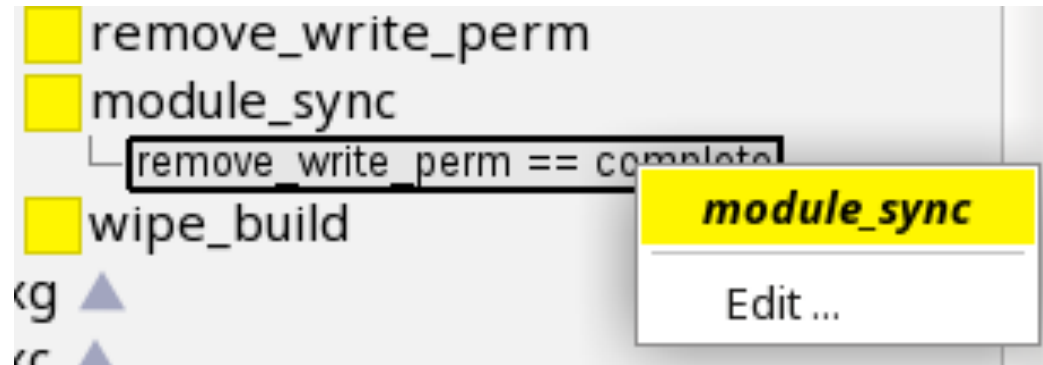
Edit, add, delete

Generated variables are green

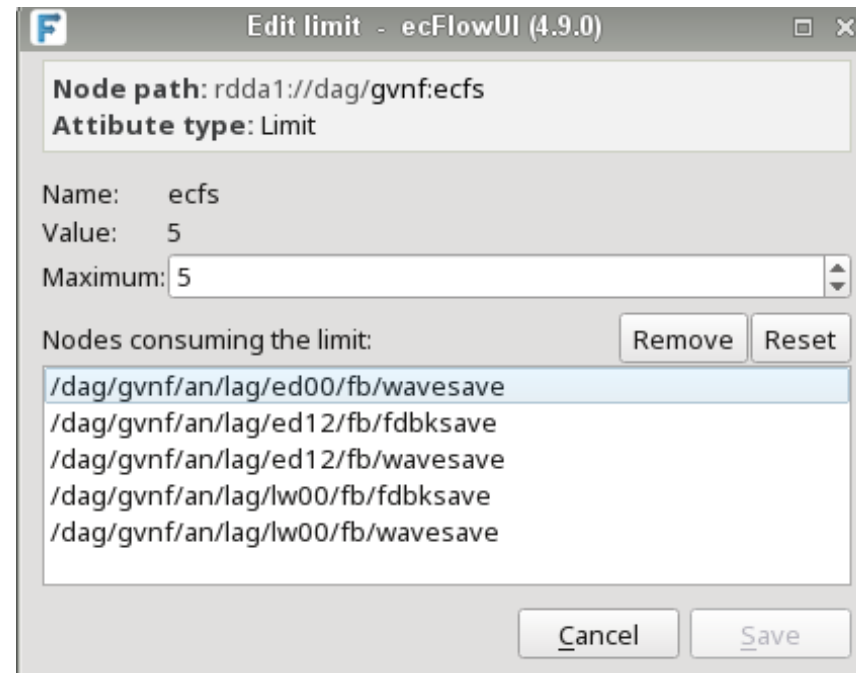
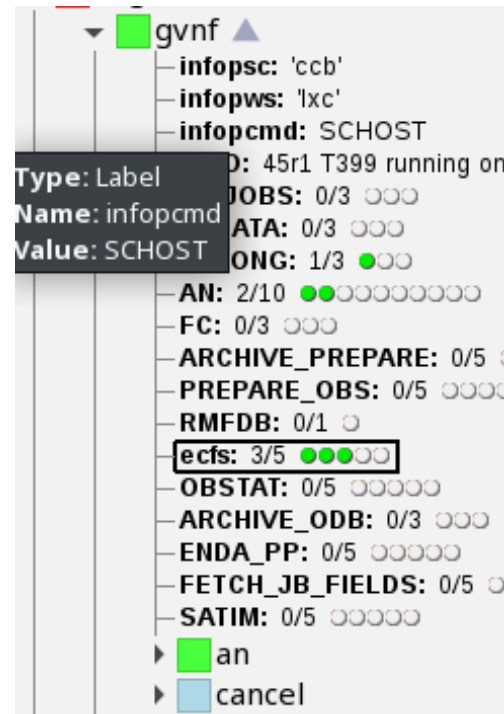
Shows variables inherited from node hierarchy

Name	Value
defined in task install	
G ECF_JOB	/home/ma/deploy/servers/ecflow-metab.5062/metabuilder/suites
G ECF_JOBOUT	/scratch/ma/deploy/ecf_out/ecflow-metab_5062/Magics/ecgb/inst
G ECF_NAME	/Magics/ecgb/install
G ECF_PASS	
G ECF_RID	
G ECF_SCRIPT	/home/ma/deploy/servers/ecflow-metab.5062/metabuilder/suites
G ECF_TRYNO	0
G TASK	install
inherited from family ecgb	
CMAKE_VARS	-DCMAKE_BUILD_TYPE=%CMAKE_BUILD_TYPE% -DENABLE_BUFRO
ECF_OUT	/scratch/ma/deploy/ecf_out/%ECF_HOST%_%ECF_PORT%
G FAMILY	ecgb
G FAMILY1	ecgb
LOGDIR	/scratch/ma/deploy/ecf_out/%ECF_HOST%_%ECF_PORT%
QUEUE	express
REMOTE_HOST	ecgb
SITE	ecgb
WSDIR	\$SCRATCH/metabuilds/%ECF_HOST%_%ECF_PORT%/ecgb/%COMP
inherited from suite Magics	
ADD_ACTION_TRIGGERS	True
ALLOW_INSTALL_TO_OVERWRITE	True
BASEDIR	%WSDIR%/_%PACKAGE%
BASEPREFIX	/usr/local/apps

Edit attributes directly from the tree

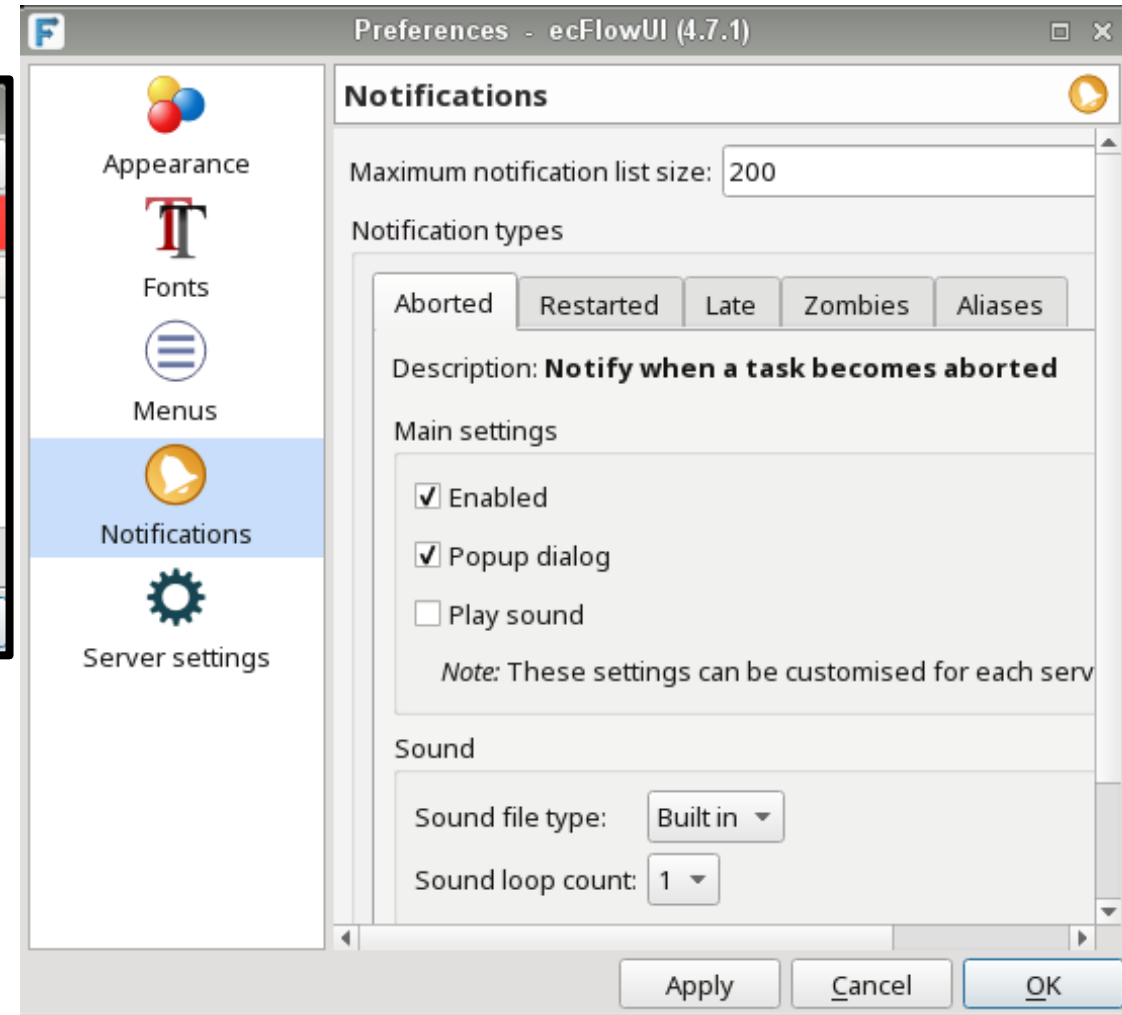
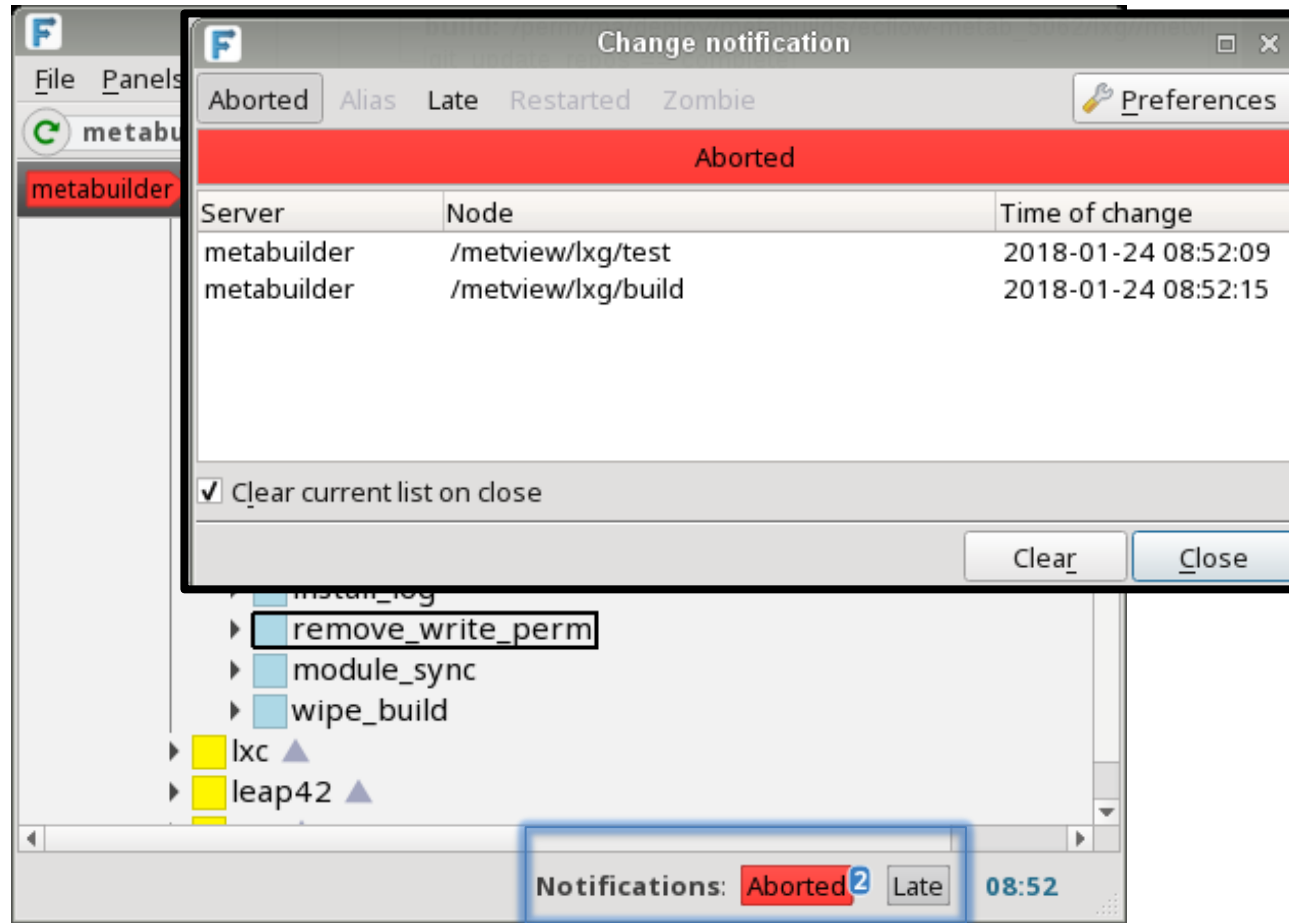


E.g. triggers



E.g. limits

Notifications



Notifications occur when the UI syncs with the server

Settings can be global or per-server

How to start up ecFlowUI?

- The command to start the ui is: **ecflow_ui**

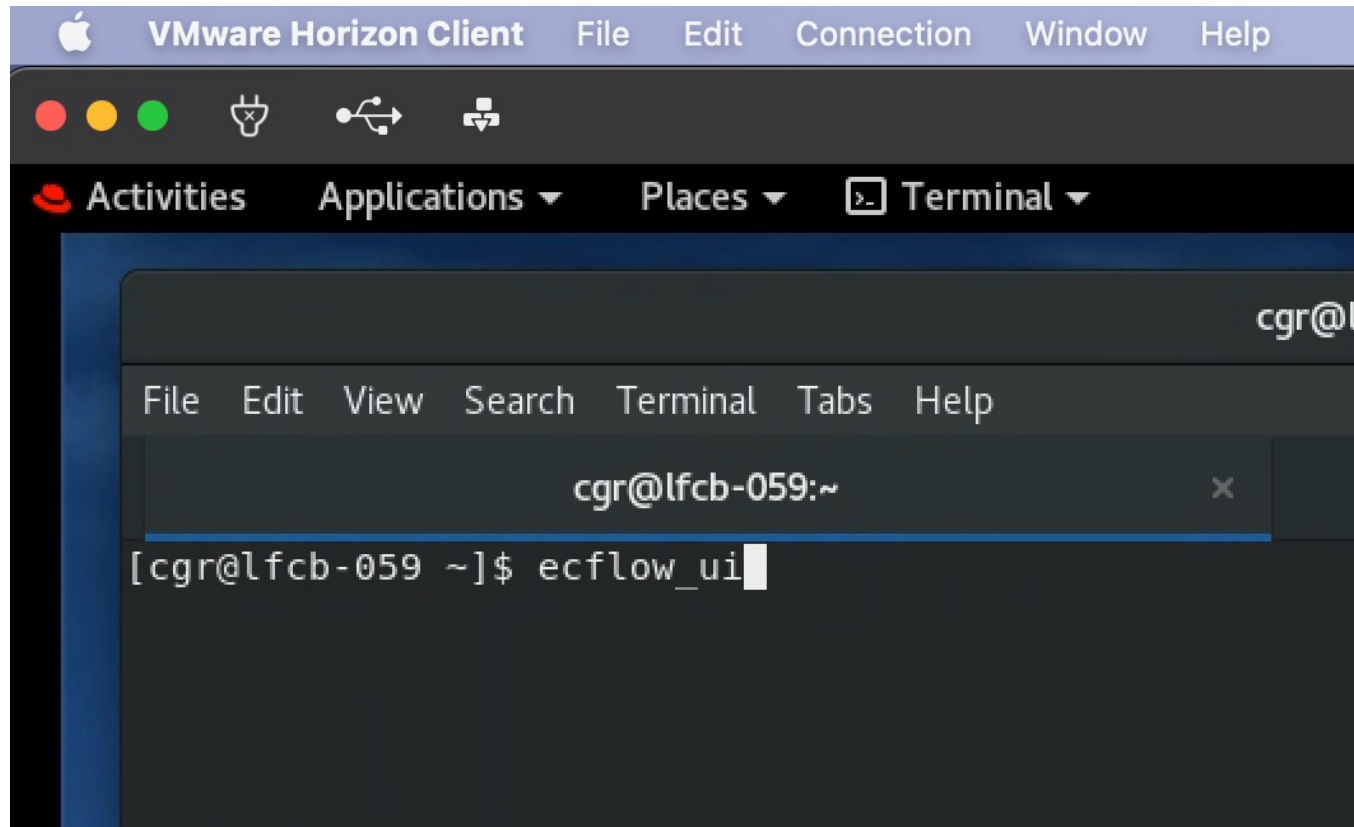
```
✓ debug % ecflow_ui -h
ecFlowUI 5.9.0
Command-line flags:
  -fs           : set fontsize (in points) for the user interface
  -log          : write log messages to standard output
  -s            : start via the session manager
  -ts <host> <port> : start a temporary session viewing the given server
  -pc4          : start the executable via the proxychains4 command
  -cmd <cmd>    : start the executable via the specified command
  -confd <dir> : start with the specified configuraton directory
  -h            : print this help message

Environment variables that have an effect on ecFlowUI:
[current value in brackets]

ECFLOW_SYSTEM_SERVERS_LIST  Pre-defined system server list files. User settings in
                             ecFlowUI (Preferences > Server > System server list) will overwrite it.
                             □
```

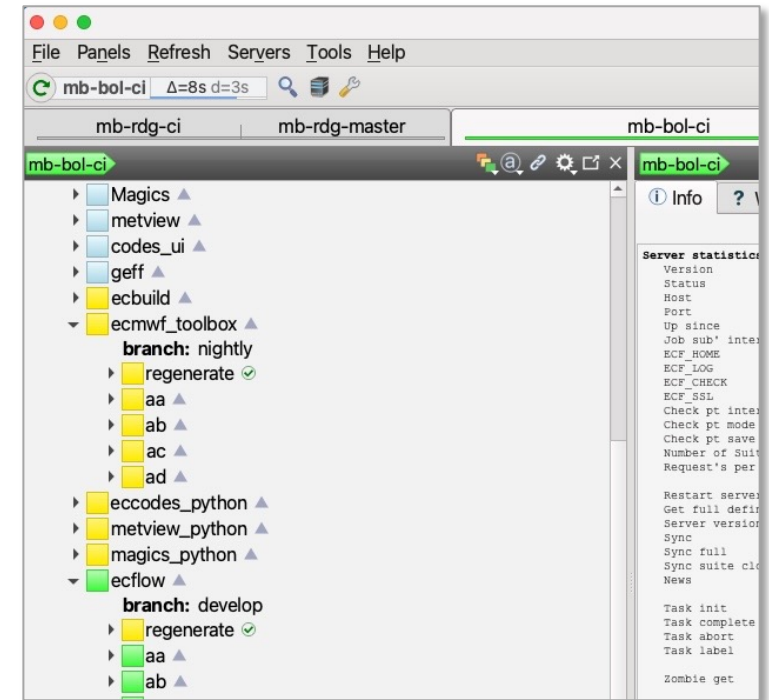
Accessing ECMWF servers: from the VDI

- Linux VDI: **desktop.ecmwf.int**
- There is only one version installed, no modules are available:

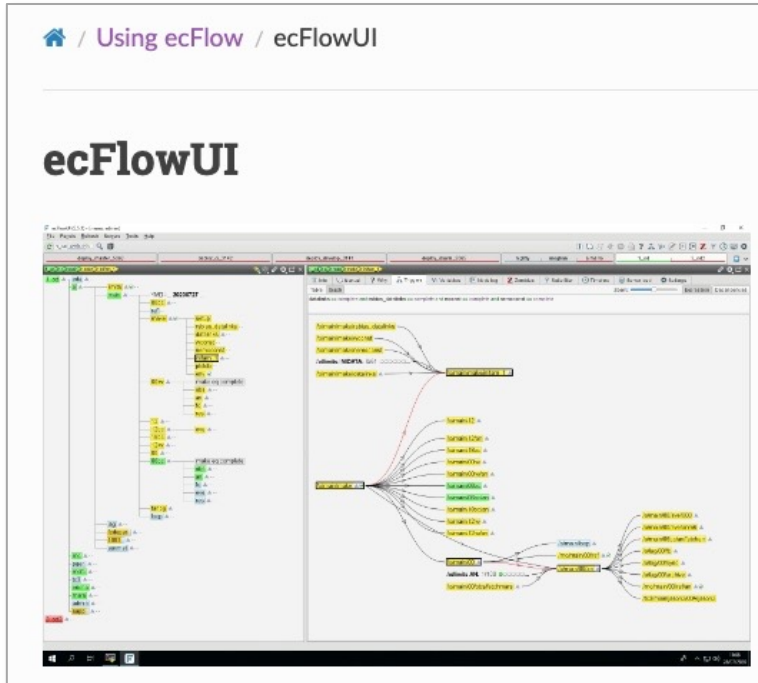


Installing ecFlow(+UI) locally

- Installation:
 - ecFlowUI: **brew install ecflow-ui** (MacOS, Linux)
 - or ecFlow: **conda install ecflow -c conda-forge** (Linux, MacOS)
 - Or build from source (<https://github.com/ecmwf/ecflow>)
- To connect to a remote server (e.g. server running at ECMWF, ecFlowUI running on laptop)
 - See instructions on ReadTheDocs to set up dynamic port forwarding
 - https://ecflow.readthedocs.io/en/latest/ug/ecflow_ui/using_ecflowui_via_the_ecmwf_teleport_gateway.html



Lots more details at ReadTheDocs:
https://ecflow.readthedocs.io/en/latest/ug/ecflow_ui/index.html



Documentation

- Getting Started with ecFlowUI
- Using ecFlowUI via the ECMWF Teleport gateway
- Communication with ecFlow servers
- Creating and running custom commands
- Customising the views
- Moving and re-ordering nodes
- Node log
- Searching for nodes
- Server load panel
- Server management
- Session management
- System server list files in ecFlowUI
- Viewing and editing variables
- Viewing dependencies
- Viewing scripts, jobs and output



Questions?