
Time-critical applications

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User Support

Member State time-critical applications

- Following Council support in 2005, a framework for Member State time-critical applications has been implemented.
- It consists of 3 options:
 - 1) Simple **job submission monitored** by ECMWF
 - 2) Member State '**SMS**' **suites monitored** by ECMWF
 - 3) Member State '**SMS**' **suites managed** by ECMWF
- Technical guidelines to advise on the development of such suites are available from the web:
http://www.ecmwf.int/services/computing/docs/tc_apps/

MS time-critical applications: Introduction

- **Daily data access from real-time archive (March 2013)**
 - **ECMWF data distribution – dissemination to ‘Member States’:**
 - **RMDCN: 110GB**
 - **Internet: 500GB**
 - **Local dissemination: 750GB (*2)**
 - **Real-time MARS access by MS users on ecgate:**
 - **~600 GB**

MS time-critical applications: Option 1

- **Enhanced ECaccess batch system**
 - **Scheduled run of jobs and retry mechanism (in ectrans) were already available in ECaccess.**
- **New concept of events, also known as notifications, added to ECaccess**
 - **Events are defined by one user; they can be made publicly available.**
 - **Event name: “fc12h240”**
 - **Event description: “at this stage, the 10 day forecast data from the high resolution 12UTC run is available”**
 - **Users can subscribe their own jobs to “public events”; these jobs will remain in standby mode until**

...

MS time-critical applications: Option 1

- **events - notifications**
 - ... until the event owner sends a notification to an event; ECaccess will then submit the jobs subscribing to that event.
 - Environmental variables can be passed to the jobs when the notification is given to the event, e.g. a date, time, ...
 - Last but not least, soon after the notification of an event, ECaccess will schedule a new version of the jobs subscribing to the event, ready to be submitted at the next notification.
- **More than 1600 jobs for 170 users in 60 events.**

MS time-critical applications: Option 1

Submit a script.

Source script

Please write your script :

```
#  
# Batch request script:  
#
```

Or upload it from:

Subscribe to notification(s).

Subscription(s)

| <input type="checkbox"/> | Id | Name | Comment |
|-----------------------------|-----|-------------|--|
| Notification(s) list | | | |
| <input type="checkbox"/> | 326 | ef00hplumes | At this stage, the EPS plume charts at 00UTC have been updated. |
| <input type="checkbox"/> | 341 | ef00h240 | At this stage, the ensemble forecast model at 00UTC (step 240) is complete |
| <input type="checkbox"/> | 323 | ef12h504 | At this stage, the ensemble forecast model at 12UTC - for step 504 (21 days) is complete |
| <input type="checkbox"/> | 342 | ef12h240 | At this stage, the ensemble forecast model at 12UTC - step 240 - is complete |
| <input type="checkbox"/> | 324 | ef00h504 | At this stage, the ensemble forecast model at 00UTC - for step 504 (21 days) is complete |
| <input type="checkbox"/> | 343 | bc00h072 | At this stage, the boundary condition forecast at 00UTC - step 72 - is complete. |
| <input type="checkbox"/> | 167 | an00h000 | At this stage, the analysis at 00UTC is complete. |
| <input type="checkbox"/> | 168 | an12h000 | At this stage, the analysis at 12UTC is complete. |

Script content editor

With the "script content editor" you can either enter your text line by line, and paste the content in your editor.

Script upload

As an alternative to the "script content editor", you can press the "Browse" button to navigate on your hard disk and select a script file from your computer.

Current PATH

The script you are going to submit will be executed in your ECSCRATCH domain. All non absolute PATH used in your script will be relative to this domain.

ECaccess target queue

Done buaccess.ecmwf.int

MS time-critical applications: Option 1

ECMWF eaccess service > Jobs > Submit - Mozilla Firefox

File Edit View Go Bookmarks Tools Help

| | | | |
|--------------------------|-----|----------|--|
| <input type="checkbox"/> | 285 | motcrefc | At this stage, the Monthly Forecast hindcast products have been updated. |
| <input type="checkbox"/> | 286 | wm00h120 | At this stage, the the European Shelf model at 00UTC is complete (step 120). |

Total: 34

automatically renew subscription
 one script to one notification

Settings of your job request.

Job settings

Do not run before (yyyy-MM-dd HH:mm): 2006-05-10 20:
Job expires after (in days): 7
Select the ECaccess target queue: ecgate (Load_Leveller) v
 script contains no directives
 redirect stderr to stdout

Man page for your job:

man page for ECMWF operators

Retry frequency (in seconds): 600
Retry count (<0:disabled): 144

Send mail to: usl
 at the begining
 at the end (on success)
 at the end (on failure)
 when restarted (on retry)

Submit job

Done buaccess.ecmwf.int

start ECMWF eaccess ser... documents time_crit_opt_1_ug - ... untitled - Paint EN 97% 21:40

automatically
renew subscription

one script to one
notification

man page for
ECMWF operators

retry count and
frequency

MS time-critical applications: Option 1

ECMWF eaccess service > Jobs > Track - Mozilla

ECMWF eaccess service > Jobs > Track

Use this interface to track jobs you have submitted to ECMWF.

Jobs submitted by us2

| | <input type="checkbox"/> | JobId | EAccess queue | Notification(s) | Schedule | Try number | Status |
|------------------|--------------------------|-------|----------------------|--------------------|--------------|------------|--------|
| Jobs list | | | | | | | |
| | <input type="checkbox"/> | 35825 | hpcd (LoadLeveler) | bc06h072 (344) | Jun 02 05:03 | 0/1 | INIT |
| | <input type="checkbox"/> | 35828 | hpcd (LoadLeveler) | bc06h072 (344) | Jun 02 05:03 | 0/1 | INIT |
| | <input type="checkbox"/> | 35964 | hpcd (LoadLeveler) | tr12h000 (185) | Jun 01 19:43 | 0/1 | STDBY |
| | <input type="checkbox"/> | 35963 | ecgate (LoadLeveler) | tr12h000 (185) | Jun 01 19:43 | 0/1 | STDBY |
| | <input type="checkbox"/> | 35962 | hpcd (LoadLeveler) | fc12h240 (182) | Jun 01 19:43 | 0/1 | STDBY |
| | <input type="checkbox"/> | 35961 | hpcd (LoadLeveler) | wg12h240 (188) | Jun 01 19:43 | 0/1 | STDBY |
| | <input type="checkbox"/> | 35960 | hpcd (LoadLeveler) | fc12h144 (181) | Jun 01 19:43 | 0/1 | STDBY |
| | <input type="checkbox"/> | 35959 | ecgate (LoadLeveler) | fc12h240 (182) | Jun 01 19:42 | 0/1 | STDBY |
| | <input type="checkbox"/> | 35958 | ecgate (LoadLeveler) | fc12hmetgram (184) | Jun 01 19:42 | 0/1 | STDBY |
| | <input type="checkbox"/> | 35957 | hpcd (LoadLeveler) | fc12hmetgram (184) | Jun 01 19:42 | 0/1 | STDBY |
| | <input type="checkbox"/> | 35956 | ecgate (LoadLeveler) | wg12h240 (188) | Jun 01 19:42 | 0/1 | STDBY |
| | <input type="checkbox"/> | 35955 | ecgate (LoadLeveler) | fc12h144 (181) | Jun 01 19:42 | 0/1 | STDBY |
| | <input type="checkbox"/> | 35954 | ecgate (LoadLeveler) | bc12h072 (345) | Jun 01 19:42 | 0/2 | STDBY |
| | <input type="checkbox"/> | 35952 | ecgate (LoadLeveler) | bc12h072 (345) | Jun 01 19:42 | 0/1 | STDBY |

Jobs list

All jobs are kept track of by their job identity number. The job status can be either "STDBY", "INIT", "WAIT", "RETR", "EXEC", "DONE" or "STOP".

Job result

To get more details about a job, select it with your mouse in the list by clicking the "Track job" icon.

Delete

You can delete one or more than one job by ticking the job(s) in the list and clicking the "Delete selected" icon.

MS time-critical applications: Option 1

● ecels – list events available to user:



ecaccess-event-list

- 326 ef00hplumes At this stage, the EPS plume charts at 00UTC have been updated.
- 341 ef00h240 At this stage, the ensemble forecast model at 00UTC (step 240) is complete
- 342 ef12h240 At this stage, the ensemble forecast model at 12UTC - step 240 - is complete
- 343 bc00h072 At this stage, the boundary condition forecast at 00UTC - step 72 - is complete.
- 167 an00h000 At this stage, the analysis at 00UTC is complete.
- 168 an12h000 At this stage, the analysis at 12UTC is complete.
- 172 ef00hmetgram At this stage, the EPS metgram database at 00UTC has been updated.

...



ecaccess-event-list 342

Notification id: 342

Name: ef12h240

Public: true

Owner: emos

Comment: At this stage, the ensemble forecast model at 12UTC - step 240 - is complete.

MS time-critical applications: Option 1

● Commands `ecaccess-job-submit` and `ecaccess-job-list`

```
> ecaccess-job-submit -help
```

Usage:

```
ecaccess-job-submit -version|-help|-manual
```

```
ecaccess-job-submit [-debug] [-local] [-encrypt] [-bufsize length]
[-scheduledDate date] [-noDirectives] [-gateway name] [-remote location]
[-transferOutput] [-transferError] [-transferInput] [-keep] [-eventIds
list] [-sterr2Stdout] [-noRenew] [-mailTo email] [-onStart] [-onSuccess]
[-onFailure] [-onRetry] [-jobName name] [-manPage content] [-lifeTime
days] [-retryCount number] [-retryFrequency frequency] queue-name source
```

```
> ecaccess-job-submit --noDirectives --eventIds 342 --retryCount 2 ecgate sms.cmd
35853
```

```
> ecaccess-job-list 35853
```

Jobid: 35853

Location: ecgate@ecgate.ecmwf.int

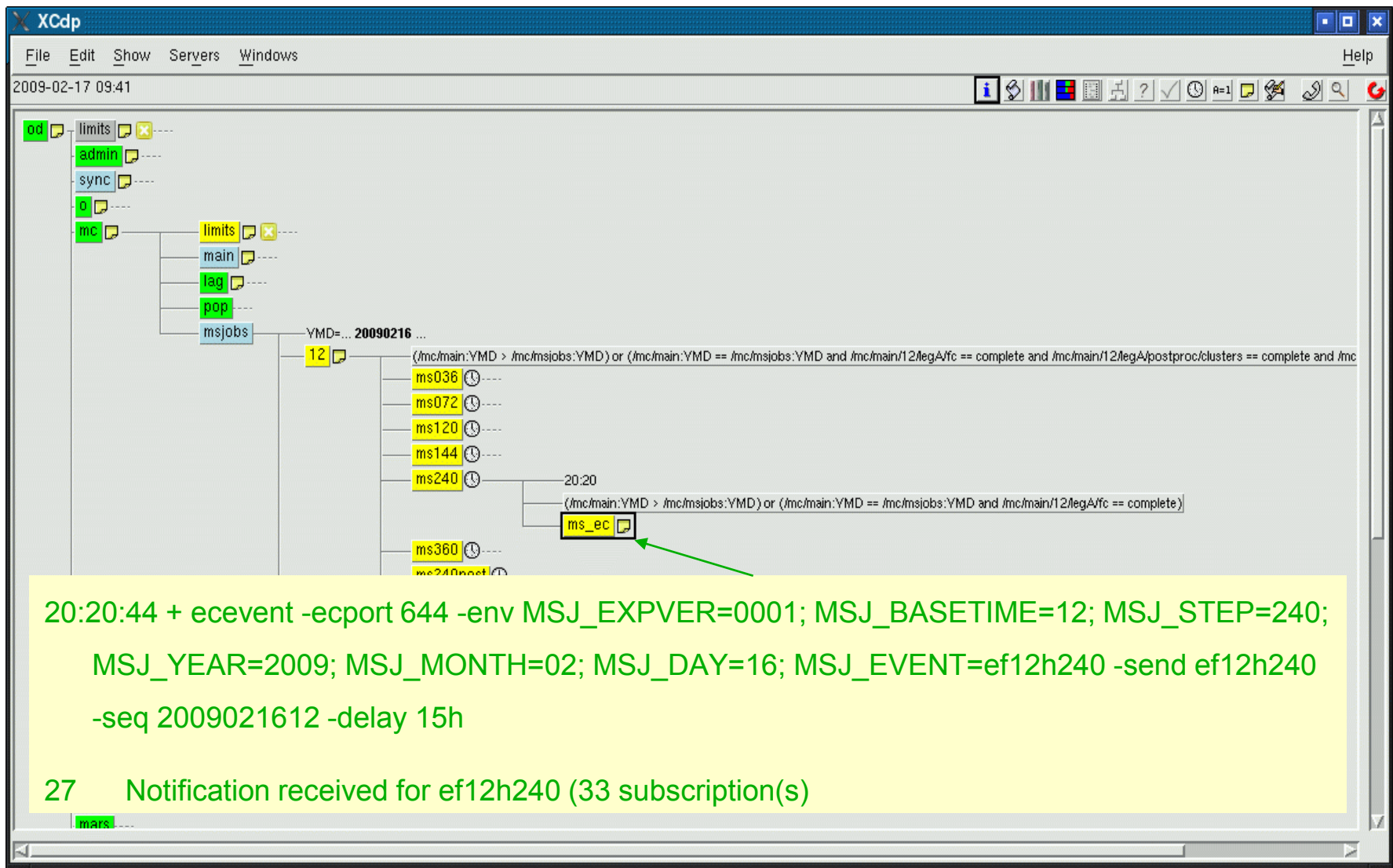
Notification(s): ef12h240 (342)

Schedule: May 31 20:06

Try number: 0/2

Status: STDBY

MS time-critical applications: Option 1



The screenshot shows the XCdp interface with a tree view on the left and a terminal window on the right. The tree view shows a hierarchy of jobs: 'od' (parent), 'limits' (child), 'admin' (child), 'sync' (child), 'o' (child), 'mc' (child), 'limits' (child), 'main' (child), 'lag' (child), 'pop' (child), 'msjobs' (child). The terminal window shows the following command and output:

```
YMD=... 20090216 ...  
12 (/mc/main:YMD > /mc/msjobs:YMD) or (/mc/main:YMD == /mc/msjobs:YMD and /mc/main/12/legA/fc == complete and /mc/main/12/legA/postproc/clusters == complete and /mc  
ms036  
ms072  
ms120  
ms144  
ms240  
20:20  
(/mc/main:YMD > /mc/msjobs:YMD) or (/mc/main:YMD == /mc/msjobs:YMD and /mc/main/12/legA/fc == complete)  
ms_ec  
ms360  
ms240post
```

20:20:44 + ecevent -ecport 644 -env MSJ_EXPVER=0001; MSJ_BASETIME=12; MSJ_STEP=240;
MSJ_YEAR=2009; MSJ_MONTH=02; MSJ_DAY=16; MSJ_EVENT=ef12h240 -send ef12h240
-seq 2009021612 -delay 15h

27 Notification received for ef12h240 (33 subscription(s))

Operators' interface – monitoring

CMD: Command Submission System - Mozilla Firefox

Firefox v CMD: Command Submission...

Time Critical Applications v0.0.5_20122301001

Filter

- Runs
- Status

Last update : Mon Mar 05 12:37:14 GMT+000 2012

00Z_runs

| Date&Time | Name | Jobs | Status |
|-------------------------------|-----------|------|--------|
| : /od/o/msjobs/00 (9 Items) | | | |
| 05 05:40:59 | ms_an18 | 13 | DONE |
| 05 05:40:59 | ms000 | 36 | DONE |
| 05 05:56:17 | ms036 | 80 | DONE |
| 05 06:06:25 | ms072 | 108 | DONE |
| 05 06:27:48 | ms144 | 75 | DONE |
| 05 06:41:59 | ms192 | 1 | DONE |
| 05 06:55:34 | mswave | 2 | DONE |
| 05 07:25:59 | msmetgram | 14 | DONE |
| 05 06:55:13 | ms240 | 130 | DONE |
| : /od/mc/msjobs/00 (11 Items) | | | |
| 05 07:41:06 | ms000 | 1 | DONE |
| 05 07:47:03 | ms036 | 1 | DONE |
| 05 07:52:08 | ms072 | 4 | DONE |
| 05 08:00:17 | ms120 | 4 | DONE |
| 05 08:04:41 | ms144 | 5 | DONE |
| 05 08:21:59 | mspost240 | 17 | DONE |
| 05 08:20:59 | ms240 | 36 | DONE |

12Z_runs

| Date&Time | Name | Jobs | Status |
|-------------------------------|-----------|------|--------|
| : /od/o/msjobs/12 (9 Items) | | | |
| 04 17:40:37 | ms_an06 | 9 | INIT |
| 04 17:40:39 | ms000 | 30 | INIT |
| 04 17:56:51 | ms036 | 76 | INIT |
| 04 18:07:11 | ms072 | 96 | INIT |
| 04 18:27:22 | ms144 | 76 | INIT |
| 04 18:41:38 | ms192 | 1 | INIT |
| 04 18:55:53 | mswave | 4 | INIT |
| 04 19:26:22 | msmetgram | 15 | INIT |
| 04 18:55:54 | ms240 | 142 | INIT |
| : /od/mc/msjobs/12 (11 Items) | | | |
| 04 19:40:34 | ms000 | 1 | INIT |
| 04 19:46:39 | ms036 | 1 | INIT |
| 04 19:52:48 | ms072 | 3 | INIT |
| 04 20:00:54 | ms120 | 4 | INIT |
| 04 20:04:57 | ms144 | 7 | INIT |
| 04 20:21:14 | mspost240 | 16 | INIT |
| 04 20:20:13 | ms240 | 35 | INIT |

bc_runs

| Date&Time | Name | Jobs | Status |
|-------------------------------|-------|------|--------|
| : /od/o/msjobs/00bc (2 Items) | | | |
| 05 05:49:10 | ms012 | 1 | DONE |
| 05 06:06:25 | ms072 | 8 | DONE |
| : /od/o/msjobs/06bc (2 Items) | | | |
| 05 11:49:41 | ms012 | 1 | DONE |
| 05 12:06:19 | ms072 | 8 | DONE |
| : /od/o/msjobs/12bc (2 Items) | | | |
| 04 17:49:44 | ms012 | 2 | INIT |
| 04 18:07:02 | ms072 | 5 | INIT |
| : /od/o/msjobs/18bc (2 Items) | | | |
| 04 23:49:43 | ms012 | 1 | DONE |
| 05 00:06:30 | ms072 | 7 | DONE |

other_runs

| Date&Time | Name | Jobs | Status |
|--|--------------|------|--------|
| : /od/mofc/mon/00/msjobs (1 Item) | | | |
| 27 22:00:53 | msmofc | 8 | INIT |
| : /od/mofc/thu/00/msjobs (2 Items) | | | |
| 01 10:00:51 | msmofc_bacl | 0 | INIT |
| 01 22:01:08 | msmofc | 0 | INIT |
| : /od/seas3/fcdate/main/prod/msjobs (1 Item) | | | |
| 15 13:01:17 | seasonal_fc | 10 | INIT |
| : /od/seas4/fcdate/main/prod/msjobs (1 Item) | | | |
| 08 12:01:42 | seasonal4_fc | 7 | INIT |

Event: /od/o/msjobs/06bc ID: 101155 Name: ms072 Updated: Mon Mar 05 12:36:12 GMT+000 2012

User: Dominique Lucas, x2386 Refresh Select All Select None Resume Selected Set/UnSet Complete

| JobId | Initial Job ID | UserID | Creation Date | Start | QueueName | Retry | Status |
|---------|----------------|--------|---------------|---------------------|-----------|-------|--------|
| 2640507 | 1832666 | ka8 | 1/1/2012 | 2012-03-04 12:07:38 | ecgate | 1/1 | DONE |
| 2640500 | 992973 | nls | 1/1/2012 | 2012-03-04 12:07:37 | ecgate | 1/1 | DONE |
| 2640501 | 2620126 | sui | 1/1/2012 | 2012-03-04 12:07:37 | ecgate | 1/1 | DONE |
| 2640504 | 2144798 | cnz | 1/1/2012 | 2012-03-04 12:07:38 | ecgate | 1/1 | DONE |
| 2640502 | 657593 | zit | 1/1/2012 | 2012-03-04 12:07:37 | ecgate | 1/1 | DONE |
| 2640505 | 1856640 | cnx | 1/1/2012 | 2012-03-04 12:07:38 | ecgate | 1/1 | DONE |
| 2640506 | 2455950 | nk7 | 1/1/2012 | 2012-03-04 12:07:38 | ecgate | 1/1 | DONE |
| 2640503 | 2348621 | ka8 | 1/1/2012 | 2012-03-04 12:07:38 | ecgate | 1/1 | DONE |

Date and time when last Notification was received for this event

Management of your own notifications

- **ecevent (on ecgate) – ecesend (with ectools):**

> **ecevent -help**

```
Usage: ecevent [-create|-send|-clear|-delete|-grant|-update] <MyNotification> \  
  [-comment "comment_for_my_notification"] \  
  [-public] [-private] [-env "variables_to_pass"] [-seq <number>] \  
  [-notify|-subscribe] [-users "list_of_users"]
```

> **ecaccess-event-send -help**

Usage:

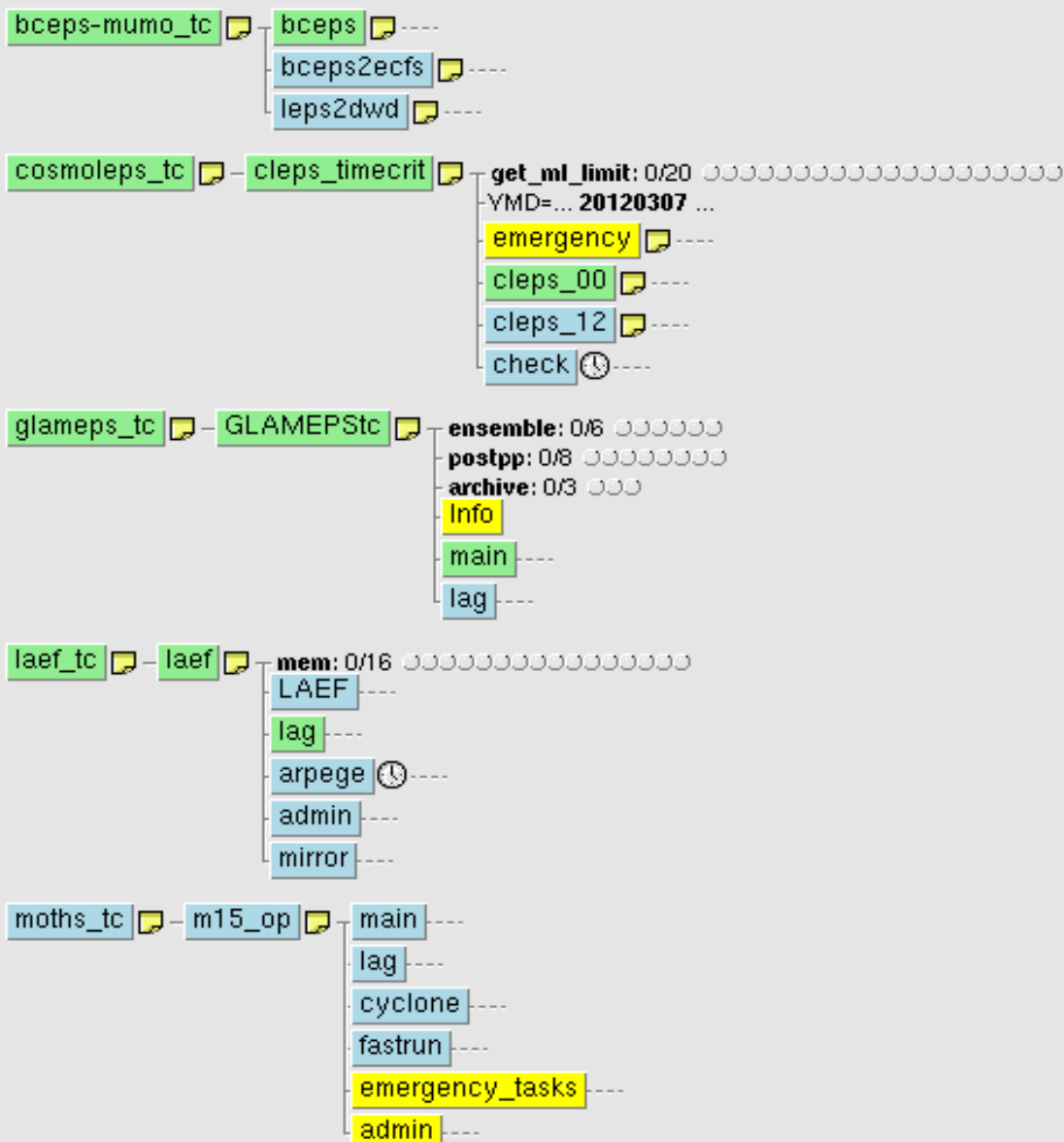
```
ecaccess-event-send -version|-help|-manual
```

```
ecaccess-event-send [-debug] [-environment variables] [-delay duration] \  
  [-at date] event-id sequence
```

MS time-critical applications: Option 2

- 2) Member State **SMS (or eflow) suites monitored** by ECMWF
- Suitable for more **complex** applications with several tasks with interdependencies among them (e.g. COSMO-LEPS, UKMO EPS, CNMCA)
 - SMS suites developed according to technical guidelines provided by ECMWF
 - ECMWF operators will provide monitoring and restart services
 - Use of this service needs to be **requested by the TAC representative** of the relevant Member State.

2012-03-07 10:45



MS time-critical applications: Option 2

- **COSMO-LEPS**

- 16+1 COSMO at 7km/40ML up to 132h twice a day at 00/12 UTC

- **ALADIN-LAEF for the Austrian Met Service**

- 17 members, 11km/37ML up to 72h twice a day at 00/12 UTC, larger domain

- **BC-EPS (MuMo) for German Met Service**

- runs four times a day at 00, 06, 12, and 18 UTC interpolating global model data from GME, GFS, GSM and IFS model to the COSMO-LMI grid.

MS time-critical applications: Option 2

- **GLAMEPS for HIRLAM and Belgian Met Service**
 - 50 + 4 members, up to 54 hours twice a day at 00/12 UTC
- **MOGREPS15: EPS based on UM as the UKMO contribution to TIGGE**
 - 22+2 members at N216L85 up to 360h twice a day at 00/12 UTC
- **SSPS for UKMO**
 - Twice a day at 00/12UTC based on ECMWF surface and pressure levels
- **ALADIN for the Portuguese Met Service**
 - 9km/46ML up to 72h twice a day at 00/12 UTC (option-2)

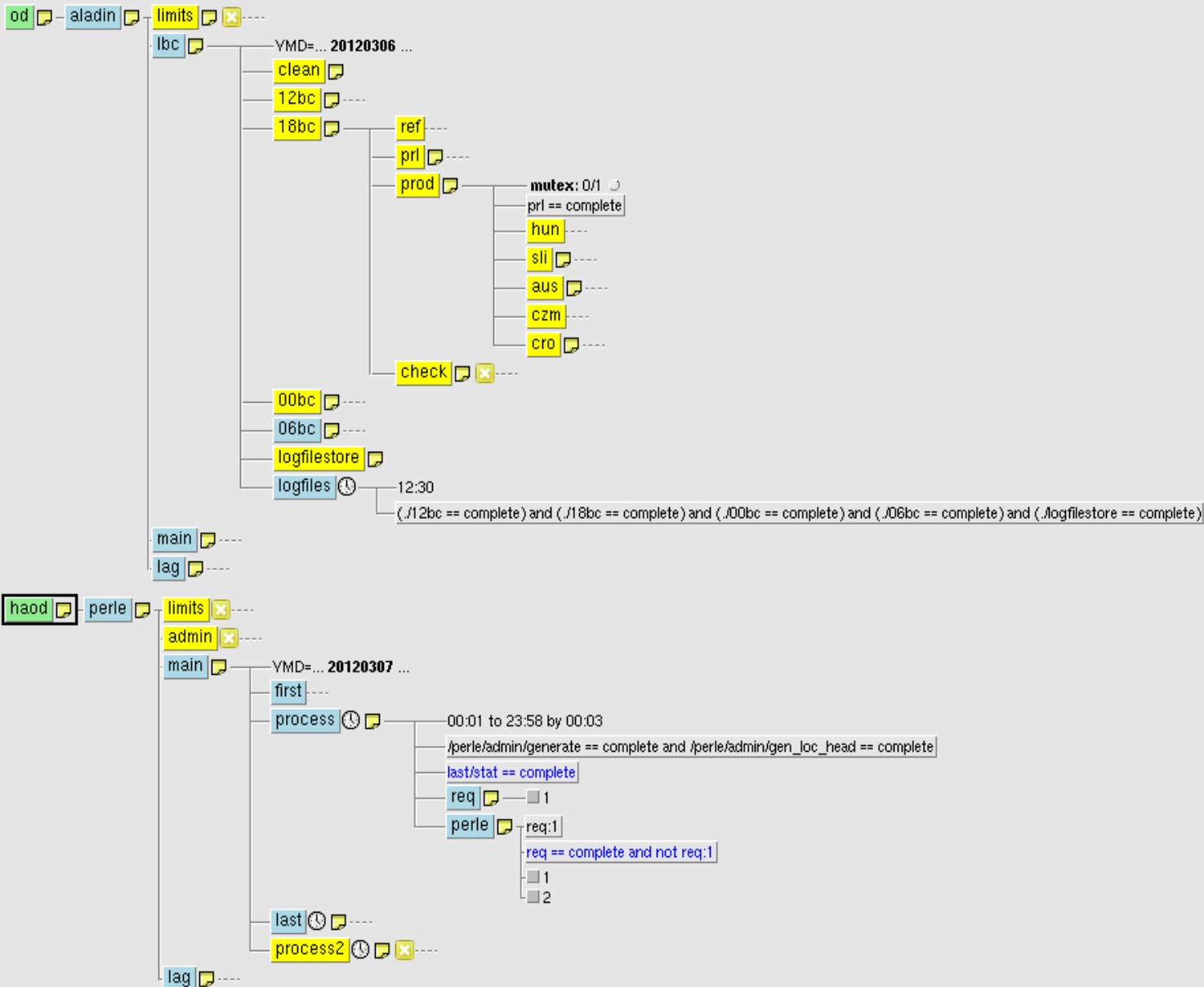
MS time-critical applications: Option 2

- **COSMO-MED/COSMO-ITA using specific 3D-Var analysis and ECMWF BC for the Italian Met Service**
 - 3D-Var assimilation at 14 km every 3 hours
 - COSMO-ME at 7 km up to 78h twice a day at 00/12 UTC
 - NETTUNO at 3 NM up to 72h twice a day at 00/12 UTC
 - COSMO-IT at 2.8 km up to 24h twice a day at 00/12 UTC
 - NETTUNO at 1 NM up to 24h twice a day at 00/12 UTC
- **New application from Iceland and interest from Greece, Spain, Germany, Belgium.**
- **EUROSIP multi-model seas. forecasts, UKMO Monthly Outlook, CM-SAF routine production and many others.**

MS time-critical applications: Option 3

- 3) Member State **SMS/ecflow suites managed** by ECMWF
- Further **enhancement** of the previous option
 - Application developed, tested and maintained by the MS
 - It must be possible to test the application using ECMWF e-suite data
 - MS suite handed over to ECMWF
 - MS responsible for the migration of the application
 - ECMWF will monitor this suite
 - ECMWF could provide first-level on-call support while second-level support would be provided by the MS
 - To be **requested by the TAC representative** of the relevant Member State
 - Option suitable when one or a small number of MS want to run a specific time-critical project

2012-03-07 10:49



MS time-critical applications: Option 3

- **LBC for ALADIN:**

- Up to 60h, four times a day at 00/06/12/18 UTC for Meteo-France
- Up to 108h, once a day at 12 UTC for Meteo-France (MOCAGE)
- Up to 78h, four times a day at 00/06/12/18 UTC for LACE countries (Hungary, Czech Rep, Slovenia, Croatia, Austria) as part of the BC Optional Programme, hourly data generated.

- **PERLE for Meteo-France**

- “on demand” data extraction of IFS boundary conditions to be used to drive a dispersion model run.

Reference

- Time critical applications:

http://www.ecmwf.int/services/computing/docs/tc_apps/