

# Updates from the IRA Computing Centre



the IRA Computing Centre staff

2025-03-24 IRA Bologna

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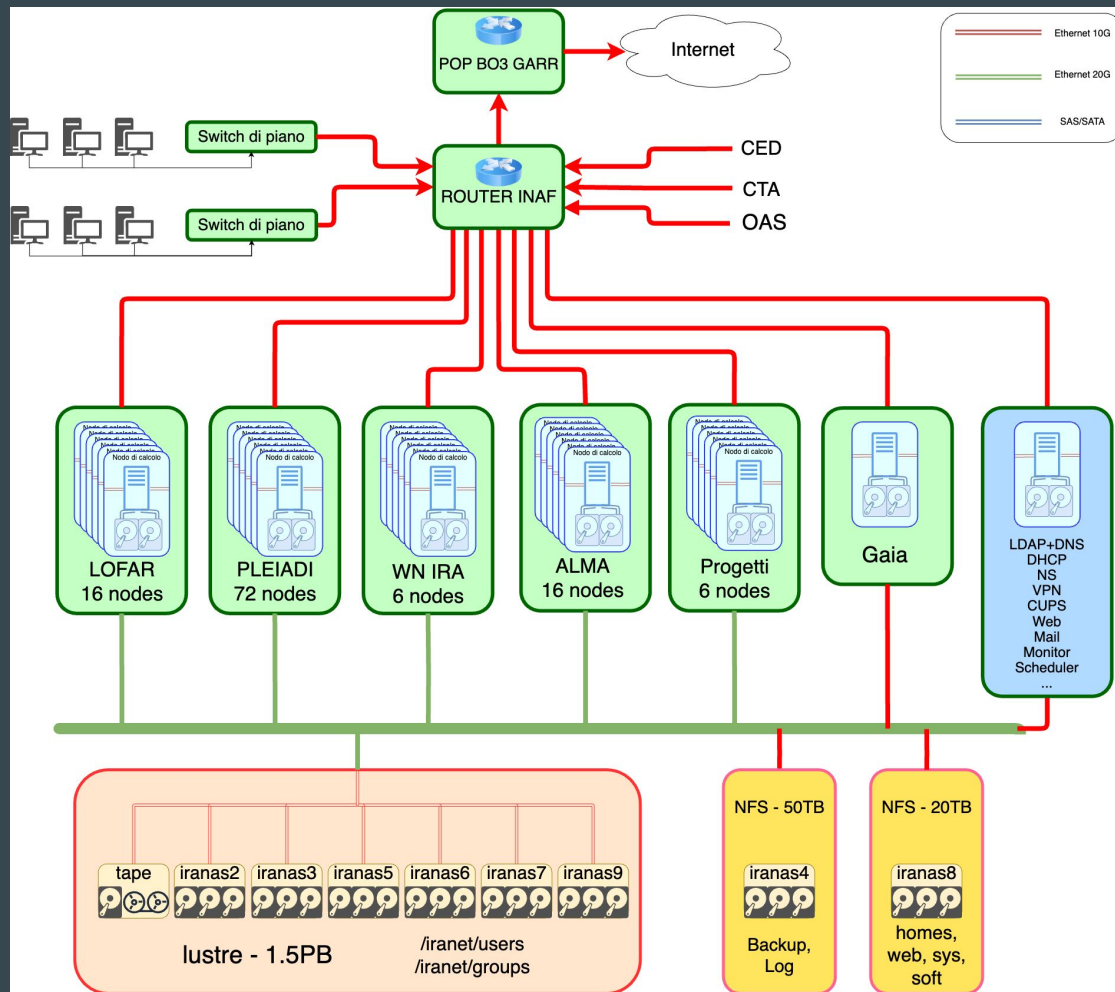
Alessandra  
Elia  
Francesco  
Marco  
Matteo G.  
Matteo S.  
Vincenzo

DEF-CON  
KILLS OWLS DEAD

ROTOR  
WASH

# Our infrastructure

- computing
- storage
- network
- services
  
- Pleiadi
- ARC
- CED (INAF services)
  
- INAF router
- CNR router + fw



# Storage

- added a “cassone” (storage unit)\*
- upgraded storage network cards to 100Gbps (from 10Gbps)
- upgraded storage network switch to 100Gbps (from 10Gbps)
- increased capacity from 1.5PB (december 2024) to 2PB (march 2025)
- consolidating metadata security (WIP)
- standardized ARCnas into IRA Lustre common storage



# Storage areas

Name	Type	Total Size	Quota	Backup
/homes /iranet/people	ZFS	20TB	50GB	yes
/iranet/sys /iranet/soft /iranet/web	ZFS	20TB		yes
/iranet/users	Lustre	1.5PB	5TB	NO
/iranet/groups /iranet/homesarc /iranet/groupsarc	Lustre	1.5PB	it depends	NO



see: [https://wiki.ira.inaf.it/index.php/Storage\\_Areas](https://wiki.ira.inaf.it/index.php/Storage_Areas)

# Quotas



- to check your quotas use the command “quota”:

```
azanich@sys:~$ quota
Space used by user azanich:
Mount Point          Bytes          Max Bytes    Files         Max Files    Last Checked
/homes                47G (93%)     50G          218K (42%)   512K         mar 18 mar 2025, 11:40:14
/iranet/users        682G          0            544K         0            mar 18 mar 2025, 11:40:24

Size of folders belonging to user azanich:
Mount Point          Bytes          Max Bytes    Files         Max Files    Last Checked
/iranet/users/azanich 579G (11%)    5,0T         389K (77%)   500K         mar 18 mar 2025, 11:40:24

Size of folders belonging to related groups:
Mount Point          Bytes          Max Bytes    Files         Max Files    Last Checked
/iranet/groups/knows 33G (0%)      5,0T         56K (5%)     1,0M         mar 18 mar 2025, 11:40:25
/iranet/groups/arc-med 1015G (9%)    10T          2,5M (49%)   5,0M         mar 18 mar 2025, 11:40:25
/iranet/groups/solari 419G (8%)     5,0T         556K (10%)   5,0M         mar 18 mar 2025, 11:40:25
/iranet/groups/ita_src 11T (101%)    10T          1,5K (0%)    5,0M         mar 18 mar 2025, 11:40:25
```



# Tape Library

- magnetic tapes
- still a work in progress with the vendor
- ~140 tapes 18TB each = 2.5PB
- will be used for:
  - mainly warm storage (Lustre)
  - cold storage
  - backup



# Network

WIP:

- upgrade storage network backbone to 100Gbps (thanks to Isabella Prandoni and STILES)
- upgrade IRA router
- upgrade INAF router (waiting for purchase)
- **GARR upgrade VLBI network to 100Gbps (Bologna, Medicina, Noto and SRT)**



# Irainit: an updated software management tool

```
11:58:42_m.gandolfi@sys:[~]:$irainit --help
```

```
irainit usage:
```

```
load <software> [version] : loads software  
unload <software> : unloads software (not yet implemented)  
display <software> : display software information and available versions  
list : lists loaded software  
avail : lists available software
```

```
more info @ https://wiki.ira.inaf.it/index.php/IraInit
```



more info: [wiki.ira.inaf.it/index.php/IraInit](https://wiki.ira.inaf.it/index.php/IraInit)

# Computing

- upgraded ARC cluster from centos 7 to Debian 11 (like the rest of the servers)
- software correlator:
  - hardware upgrade (WIP)
  - full integration with IRA's computing/storage (WIP)
- imminent upgrade to Debian 13 (we'll suffer, together!)

# Upgrade to Debian 13

- we're on Debian 11 right now
- Debian 11 EOL half 2026
- software will change on servers and workstations
- all the /iranet/soft software will need to be recompiled
- extensive testing phase
- Debian 13 release in late Summer 2025

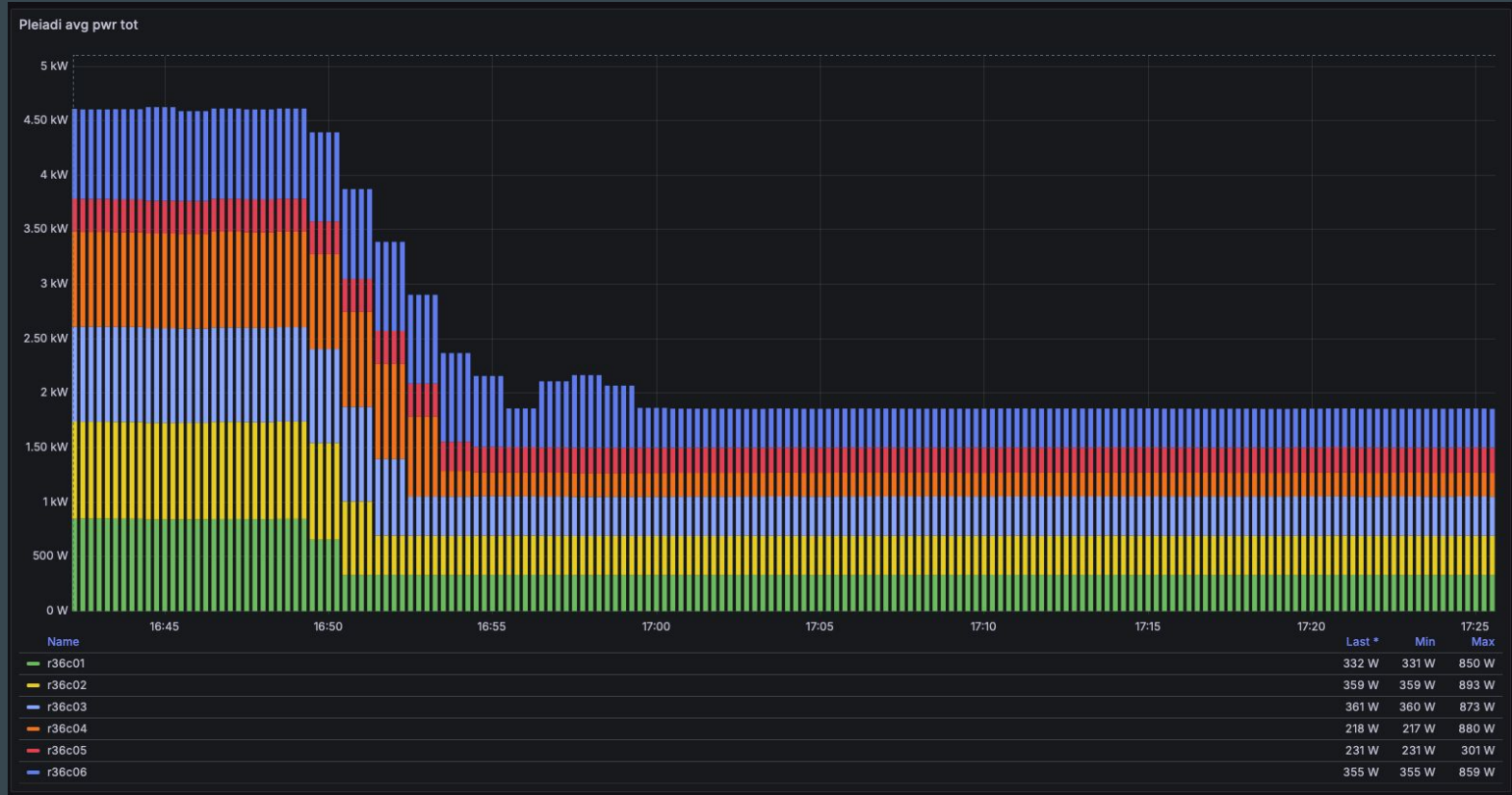
# Pleiadi

- INAF service provided to INAF and scientific community
- 3 sites: Bologna, Trieste and Catania
- total of ~7000cores
- Bologna:
  - 72 nodes ( $\frac{1}{2}$  Pleiadi and  $\frac{1}{2}$  Lofar-Pleiadi)
  - total of 2592 cores (5184 threads)
  - total of 16.8 TB of ram
- Upgrades:
  - by the end of 2025 recover unused ram from twin and upgrade last chassis to 256GB ram
- Calls to allocate resources every 6 months or on-demand
- Integrated in the computing center and user support



more info on how  
to request time on  
the cluster

# still Pleiadi but greener



# still Pleiadi but greener and cooler

- 6x chassis with 12 nodes each
- power consumption for a chassis with idle nodes: from ~860Wh to ~220Wh
- automatic shutdown of the nodes after 2hours of idle time
- idle power consumption of Pleiadi down from 5kWh to 1.8kWh keeping some servers active for interactive sessions
- “easy” leveraging Slurm scheduler
- less power draw, less noise, less heat generation
  - happier seals \*



\*:



think about adopting  
Slurm scheduler for  
your computing nodes

think of the seals



# SPAM (the e-mail kind)

- 2 mail systems:
  - IRA self-hosted [@ira.inaf.it](mailto:@ira.inaf.it)
  - INAF Google suite [@inaf.it](mailto:@inaf.it)
- different leeway for spam management on both of the systems
- if you have the doubt a mail has been incorrectly caught in the spam filter please notify us



## MartijnOei/**CSPAM**

CSPAM, short for CASA SPAM, is a pipeline for reducing low-frequency radio astronomy data



1  
Contributor

0  
Issues

0  
Stars

1  
Fork



# personal html page - static site generator



about me  
curriculum vitae  
markdown syntax  
example text file  
ira homepage



## About me

Example website to show some of the available themes. The source is available at [/template/pelican/website/source](#).

You can view this website compiled with different themes [here](#).  
For a complete list visit [pelicanthemes.com](#).

For a blog example go to [/template/pelican/blog](#).

This is the index of the website.  
To set a page as index use the following metadata in the page source:

```
URL:  
Save_as: index.html
```

- URL:
  - Setting an empty URL will generate a page with the site's root as its URL.
- Save\_as: index.html
  - Save the page as `index.html` inside the root directory of the website.

```
1 Title: About me  
2 URL:  
3 Save_as: index.html  
4  
5 ##  
6  
7 Example website to show some of the available themes. The source is available at \[/template/pelican/website/source\]\(https://people.ira.inaf.it/template/pelican/website/source\).  
8  
9 You can view this website compiled with different themes \[here\]\(https://people.ira.inaf.it/template/pelican/website/output\).  
10 For a complete list visit \[pelicanthemes.com\]\(https://pelicanthemes.com/\).  
11  
12 For a blog example go to \[/template/pelican/blog\]\(https://people.ira.inaf.it/template/pelican/blog\).  
13  
14 —  
15  
16 This is the index of the website.  
17 To set a page as index use the following metadata in the page source:  
18  
19 ```markdown  
20 URL:  
21 Save_as: index.html  
22 ```  
23  
24 - URL:  
25   - Setting an empty URL will generate a page with the site's root as its URL.  
26 - Save_as: index.html  
27   - Save the page as `index.html` inside the root directory of the website.
```

- made with Pelican
- default template
- default configuration
- can also be used for conferences websites or personal blog (WIP)

Looking for beta testers

# AOB - WIP

- anti flooding system
- monitoring system
- new and improved phonebook
- arcbl 13 hardware refresh

# Available services

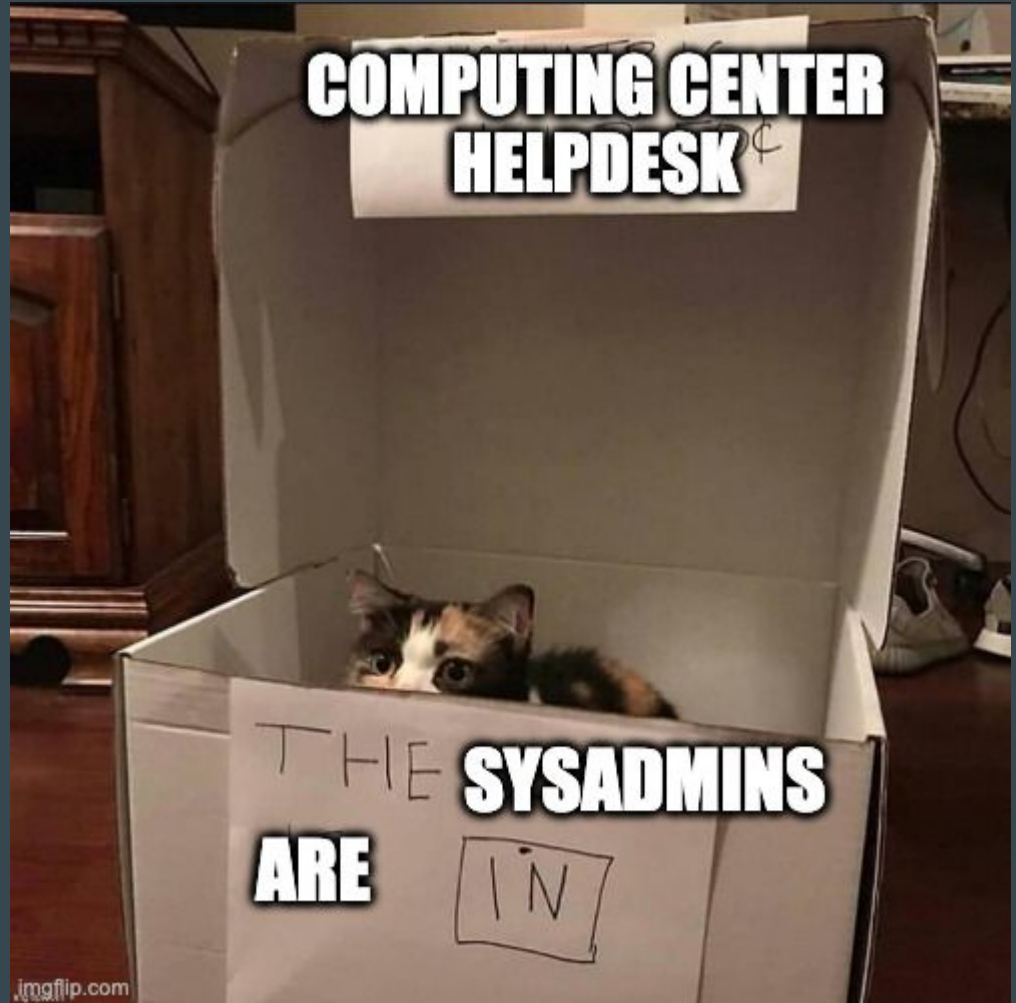
- file sharing: public\_html and [share.ira.inaf.it](https://share.ira.inaf.it)
- personal html page: [people.ira.inaf.it/username](https://people.ira.inaf.it/username)
- we have our own owncloud: [cloud.ira.inaf.it](https://cloud.ira.inaf.it) (access with IRA credentials)
- wiki: a project can use it and create its own category [wiki.ira.inaf.it](https://wiki.ira.inaf.it)
- mailing lists on [@ira.inaf.it](mailto:@ira.inaf.it)
- collaborative pad: [pad.ira.inaf.it](https://pad.ira.inaf.it)
- server stats: [stats.ira.inaf.it](https://stats.ira.inaf.it)
- wake-on-lan
- docker-build (*only for building*, not for running)
- eduroam

link to our wiki entry about services:



we are  
here for  
you

please contact us





# we are here for you

- write an email to [ira-bo-sys@ira.inaf.it](mailto:ira-bo-sys@ira.inaf.it)
  - this is the preferred way for contacting us
  - please write to the group and not to the single person, this is useful to answer your questions or requests even if someone is sick/on vacation/has won the lottery and left for a tropical island
  - the more info you give us, the better we can understand the issue and help you
- find us at 1st floor near the computing center
  - (it's the big room that sounds like a jet engine taking off, #306)
  - rooms: #307 Marco, #311 Matteo S., #312 Francesco, #319 Matteo G. ed Elia
- call us
  - find our numbers in the IRA Phonebook: <https://info.ira.inaf.it/en/about/contacts/>

**Thanks!**  
**(questions?)**

the IRA Computing Centre staff